

Proceedings of the American Academy of Arts and Sciences.

VOL. XLIV. No. 26. — SEPTEMBER, 1909.

RECORDS OF MEETINGS, 1908-1909.

REPORT OF THE COUNCIL: BIOGRAPHICAL NOTICES.

GUSTAVUS HAY. BY WILLIAM E. BYERLY.

CHARLES FOLLEN FOLSOM. BY JAMES JACKSON PUTNAM.

OFFICERS AND COMMITTEES FOR 1909-1910.

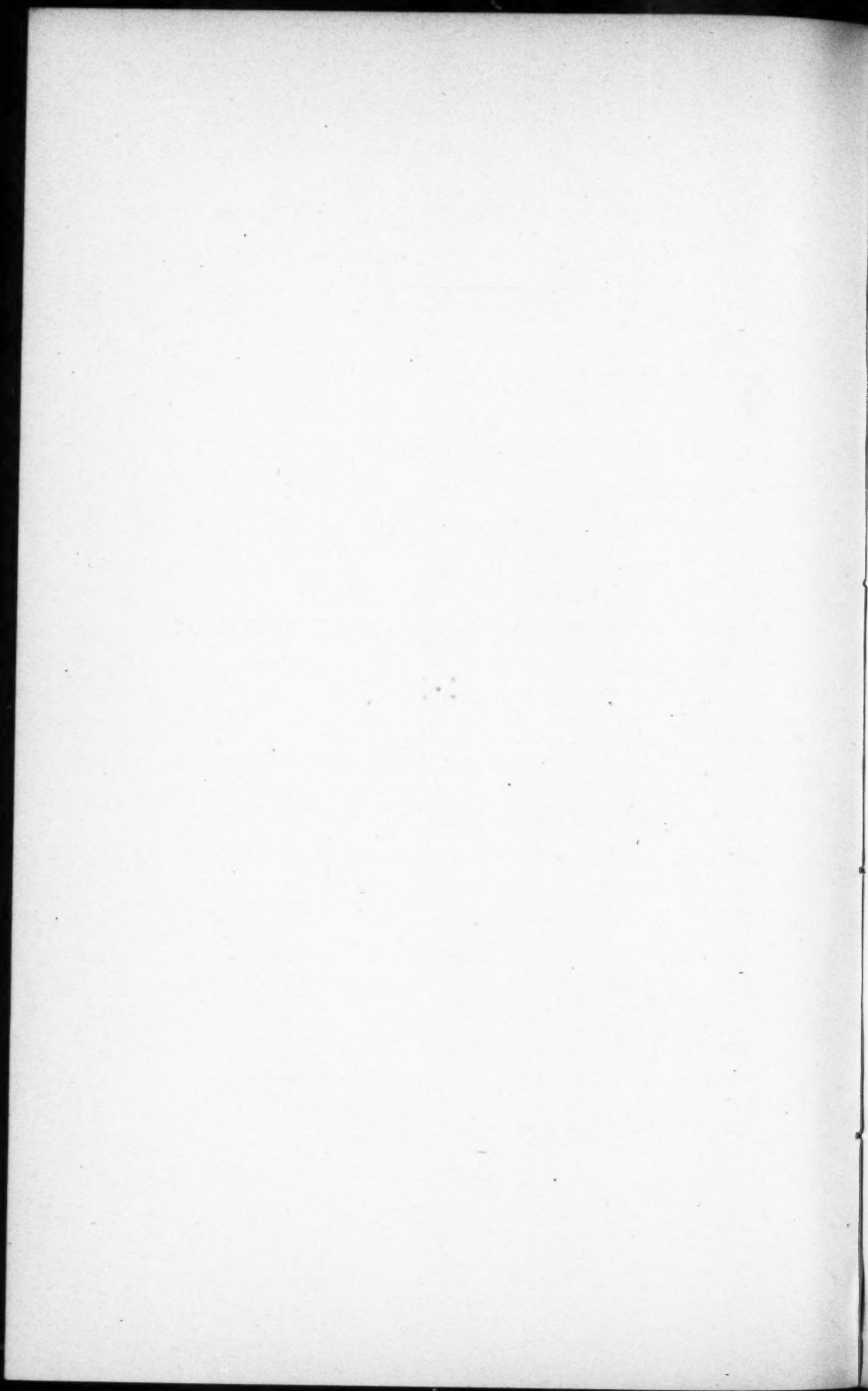
LIST OF THE FELLOWS AND FOREIGN HONORARY
MEMBERS.

STATUTES AND STANDING VOTES.

RUMFORD PREMIUM.

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RECORDS OF MEETINGS.

Nine hundred eighty-third Meeting.

OCTOBER 14, 1908. — STATED MEETING.

The PRESIDENT in the chair.

There were thirty-four Fellows and one guest present.

The Corresponding Secretary announced that letters had been received from Lady Evans, notifying the Academy of the death of Sir John Evans; from C. H. Warren, accepting fellowship; from Emil Fischer, accepting Foreign Honorary Membership; from William W. Goodwin, thanking the Academy for the resolution expressing its appreciation of his services as President; from Charles Gross, resigning Fellowship; from the Physikalisch-medizinische Sozietät, of Erlangen, inviting the Academy to attend its centennial celebration, June 27, 1908; from the American Association for the Advancement of Science, inviting the Academy to meet with them at Baltimore, Dec. 28, 1908, to Jan. 2, 1909; from the University of Cambridge, inviting the Academy to participate in the commemoration of the centenary of the birth of Charles Darwin; from the Comité Technique contre l'Incendie, enclosing the program of the Second International Congress; from the Nobel Prize Committee for Physics, and for Chemistry, inviting competition; from the Reale Università di Catania, inviting the Academy to attend the inauguration of a monument to the naturalist, Giuseppe Gioeni, July 19, 1908; from Dr. H. Morize, of the Rio de Janeiro Observatory, notifying the Academy of his appointment as Director; from the Königliche böhmische Gesellschaft der Wissenschaften, announcing the death of Johann Kvícala, and Karl Pelz; from the Service Géologique du Portugal, announcing the death of its president, J. F. Nery Delgado; from the

Museo de la Plata, announcing the death of Enrique A. S. Delachaux; from the Belgian government, enclosing a prospectus of the First International Congress of Administrative Sciences at Brussels in 1910.

The Chair announced the following deaths:—

James D. Hague, Associate Fellow in Class I, Section 4; Henry C. Sorby, Class II, Section 1, and Sir John Evans, Class III, Section 2, Foreign Honorary Members.

It was *Voted*, To authorize the President to appoint one or more delegates to represent the Academy at the celebration of the University of Cambridge in commemoration of the centenary of the birth of Charles Darwin.

It was *Voted*, That the Corresponding Secretary explain to the Secretary of the American Association for the Advancement of Science the inability of the Academy to accept the invitation of the Association to participate in its meeting at Baltimore.

On the motion of the Recording Secretary, it was *Voted*, To meet on adjournment, on the 11th of November.

The President delivered his inaugural address, "Physical Science of To-day."

Professor Story gave an informal talk on Mathematical Puzzles.

The following paper was presented by title:—

"Binary Mixtures, a Contribution to Physical Chemistry," by William E. Story.

Nine hundred eighty-fourth Meeting.

NOVEMBER 11, 1908. — ADJOURNED STATED MEETING.

The PRESIDENT in the chair.

There were twenty Fellows present.

The Corresponding Secretary presented an invitation from the University of Missouri requesting delegates to attend the Inauguration of Albert Ross Hill as President of the University.

The Chair announced the death of Charles Eliot Norton, Resident Fellow in Class III, Section 4.

Certain amendments to the Statutes were proposed by the

Treasurer, and referred to a committee consisting of W. H. Pickering, J. E. Wolff, and the Recording Secretary.

The President announced the appointment of Professor W. G. Farlow as representative of the Academy at the Darwin celebration of the University of Cambridge.

The following communications were given:—

Biographical notice of Dr. Charles Follen Folsom. By Dr. James J. Putnam.

"Location of a Hypothetical Planet beyond Neptune." By Professor W. H. Pickering.

The following papers were read by title:—

"The Preface of Vitruvius." By M. H. Morgan.

"The Theory of Ballistic Galvanometers of Long Period." By B. O. Peirce.

"The Magnetic Behavior of Hardened Cast Iron and Tool Steel at very High Excitations." By B. O. Peirce.

"The Use of the Magnetic Yoke in Measurements of the Permeabilities of Iron and Steel Rods in Intense Fields." By B. O. Peirce.

"A Study of Residual Charge in Dielectrics." By C. L. B. Shuddemagen. Presented by E. H. Hall.

Nine hundred eighty-fifth Meeting.

DECEMBER 9, 1908.

The PRESIDENT in the chair.

There were thirty-one Fellows and one guest present.

The Corresponding Secretary read a notice of a prize to be given in 1910, by the Académie des Sciences et Lettres of Montpellier, to the author of the best work on the subject of General Pathology and Therapeutics. He also read the resignation of C. H. Toy, to take effect in May, 1909.

The following deaths were announced by the Chair:—

John H. Wright, Resident Fellow in Class III, Section 2;
Gaston Boissier, Foreign Honorary Member in Class III, Section 4.

Professor George F. Moore read a paper entitled:—

"The Jewish Colony at Elephantine: Recently discovered Papyri."

On adjournment to the Council Room, Professor J. E. Wolff gave an illustrated talk on "A Geological Tour in the Mountains of Montana and British Columbia."

Professor Percival Lowell spoke on his recent discovery, made through photographs, of the watery vapor surrounding Mars.

The following papers were presented by title:—

"A Revision of the Atomic Weight of Arsenic. Preliminary Paper: The Analysis of Silver Arsenate." By Gregory Paul Baxter and Fletcher Barker Coffin.

"Properties of Aluminium Anodes." By H. W. Morse. Presented by John Trowbridge.

Contributions from the Harvard Mineralogical Museum XIII: "Notes on the Crystallography of Leadhillite." By Charles Palache.

"Crystal Rectifiers for Electric Currents and Electric Oscillations. Part II. Carborundum, Anatase, Brookite, Molybdenite." By George W. Pierce.

"On the Joule-Thomson Effect in Air." By S. B. Serviss. Presented by John Trowbridge.

"The Measurement of High Hydrostatic Pressure: I. A Simple Primary Gauge. II. A Secondary Mercury Resistance Gauge." By P. W. Bridgman. Presented by W. C. Sabine.

"An Experimental Determination of Certain Compressibilities." By P. W. Bridgman. Presented by W. C. Sabine.

Nine hundred eighty-sixth Meeting.

JANUARY 13, 1909. — STATED MEETING.

The PRESIDENT in the chair.

There were twenty-four Fellows present.

The Corresponding Secretary announced that letters had been received from Professor William Trelease stating that he attended the inauguration of President Hill at the University of Missouri, as the representative of the Academy; from the Museo Nacional de Mexico, offering the felicitations of the New Year; from Charles I. Kiralfy, announcing the Imperial International Exhibition in London in 1909; from the Société des

Sciences de Finlande, announcing the death of its permanent Secretary, Lorenz L. Lindelöf, and the appointment of Anders Donner to the position; from the Philological Society of Rome, announcing the progress of the Graziadio Ascoli Fund and soliciting subscriptions; from William Z. Ripley, Resident Fellow, resigning Fellowship.

The Chair announced the death of Wolcott Gibbs, Associate Fellow in Class I, Section 3; and of W. K. Brooks, Associate Fellow in Class II, Section 3.

The following gentlemen were elected members of the Academy:—

Henry Fay, of Boston, to be a Resident Fellow in Class I, Section 3 (Chemistry).

Reginald Aldworth Daly, of Cambridge, to be a Resident Fellow in Class II, Section I (Geology, Mineralogy, and Physics of the Globe).

Harris Hawthorne Wilder, of Northampton, to be a Resident Fellow in Class II, Section 3 (Zoölogy and Physiology).

Henry Herbert Edes, of Cambridge, to be a Resident Fellow in Class III, Section 4 (Literature and the Fine Arts).

Upon the recommendation of the Committee on Amending the Statutes it was

Voted, To amend Chapter V, Section 7, to read as follows:—

“The House Committee to consist of three Fellows. This Committee shall have charge of all expenses connected with the House, including the general expenses of the Academy not specifically assigned to other Committees. This Committee shall report to the Council in March in each year on the appropriations needed for their expenses for the coming year. All bills incurred by this Committee within the limits of the appropriations made by the Academy shall be approved by the Chairman of the House Committee.”

To amend Chapter X, Section 2, by adding to it the following:—

“In the case of officers of the Army or Navy, who are out of the state on duty, payment of the annual assessment may be waived during such absence if continued during the whole official year and if notification of such absence be sent to the Treasurer.”

Dr. G. H. Parker read a paper entitled, "The Ears of Fishes in Relation to the Noise of Motor-boats, etc."

This was followed by a communication on the "Location of a Supposed Planet beyond Neptune." By Professor Percival Lowell.

The following papers were presented by title:—

"A Revision of the Atomic Weight of Chromium. First Paper: The Analysis of Silver Chromate." By G. P. Baxter, Edward Mueller, and M. A. Hines.

"A Revision of the Atomic Weight of Chromium. Second Paper: The Analysis of Silver Dichromate." By G. P. Baxter and R. H. Jesse, Jr.

Nine hundred eighty-seventh Meeting.

FEBRUARY 10, 1909.

The PRESIDENT in the chair.

There were twenty-three Fellows present.

The Corresponding Secretary announced that the following letters had been received:—

From Henry H. Edes, Henry Fay, Reginald A. Daly, and Harris H. Wilder, accepting Resident Fellowship; from the New York Academy of Sciences, inviting the Academy to attend its Darwin celebration on February 12; from the University of Geneva, inviting the Academy to send delegates to the celebration of its three hundred and fiftieth anniversary, July 7-10, 1909; from the American Antiquarian Society, announcing the retirement of its Librarian, Mr. E. M. Barton, and the appointment of Mr. C. S. Brigham to the position; from the Royal Society of Sciences, Gottingen, announcing a prize of \$25,000 to be awarded to the first person proving the theorem that the equation $x^\lambda + y^\lambda = z^\lambda$ cannot be solved in integers if λ is an uneven prime number; from the Royal Academy of Sciences, Turin, announcing the seventeenth Bressa Prize.

On motion of the Corresponding Secretary, it was

Voted, That the invitation of the University of Geneva be accepted, and the selection of the delegates be made by the President.

The following communication was given by Professor W. B. Cannon : —

“The Correlation of Gastric and Intestinal Digestive Processes and the Influence of Emotions upon Them.”

The following paper was read by title : —

“A Photographic Study of Mayer’s Floating Magnets.” By Louis Derr.

Nine hundred eighty-eighth Meeting.

MARCH 10, 1909. — STATED MEETING.

The PRESIDENT in the chair.

There were twenty-nine Fellows present.

The Corresponding Secretary read a letter from Professor Maxime Bôcher, resigning Fellowship in the Academy.

The following deaths were announced by the Chair : —

Frederick I. Knight, Resident Fellow in Class II, Section 4;
Julius Thomsen, Foreign Honorary Member in Class I, Section 3.

The following gentlemen were elected members of the Academy : —

Gilbert Newton Lewis, of Boston, as Resident Fellow in Class I, Section 3 (Chemistry).

Herbert Wilbur Rand, of Cambridge, as Resident Fellow in Class II, Section 3 (Zoölogy and Physiology).

William Morton Wheeler, of Boston, as Resident Fellow in Class II, Section 3 (Zoölogy and Physiology).

The Chair appointed the following Councillors to serve as Nominating Committee : —

James C. White, of Class II.

William R. Ware, of Class III.

Ira N. Hollis, of Class I.

On motion of the Librarian, it was

Voted, To appropriate from the income of the General Fund the sum of three hundred dollars (\$300) for House expenses, and the sum of two hundred dollars (\$200) for the binding of books.

The following communications were given : —

“Roman Calorifers.” By Morris H. Morgan.

“The Titles of Pāli Texts and the Brief Designations of the Same.” By Charles R. Lanman.

The following papers were presented by title:—

"The Relations of the Norwegian with the English Church, 1066-1399, and their Importance to Comparative Literature." By Henry G. Leach. Presented by G. L. Kittredge.

"Some European Sandforms." By D. W. Johnson.

Contribution from the Gray Herbarium of Harvard University. New Series. No. XXXVII. 1. "Synopsis and Key to the Mexican and Central American Species of *Castilleja*." By A. Eastwood. 2. "A Revision of the Genus *Rumfordia*." By B. L. Robinson. 3. "A Synopsis of the American Species of *Litsea*." By H. H. Bartlett. 4. "Some Undescribed Species of Mexican Phanerogams." By A. Eastwood. 5. "Notes on Mexican and Central American Alders." By H. H. Bartlett. 6. "Diagnoses and Transfers of Tropical American Phanerogams." By B. L. Robinson. 7. "The Purple-flowered *Androcera* of Mexico and the Southern United States." By H. H. Bartlett. 8. "Descriptions of Mexican Phanerogams." By H. H. Bartlett. Presented by B. L. Robinson.

"Crystallographic Notes on Minerals from Chester, Massachusetts." By Charles Palache and H. O. Wood.

Nine hundred eighty-ninth Meeting.

APRIL 14, 1909.

The Academy met at its house.

The PRESIDENT in the chair.

There were twenty-six Fellows and one guest present.

The Corresponding Secretary read letters from Herbert W. Rand and from W. M. Wheeler, accepting Resident Fellowship; from C. H. Toy and W. T. Porter, resigning Resident Fellowship; from the Academy of Natural Sciences of Philadelphia, Mineralogical and Geological Section, announcing a second annual meeting of geologists, to be held at Philadelphia, April 23 and 24, 1909; from the Holland Society of Sciences, announcing the resignation of its Permanent Secretary, J. Bosscha, and the appointment of J. P. Lotsy in his place; from the Senckenbergische Naturforschende Gesellschaft, announcing the death of Professor Dr. Fritz Römer, the director of its Museum.

The following communications were given:—

“The Present Status of Color Photography.” By Louis Derr.

“The Algal Hypothesis of the Origin of Coal.” By E. C. Jeffrey.

The following paper was presented by title:—

“Regeneration in the Brittle Star.” By Sergeus Morgulis.

Presented by E. L. Mark.

Nine hundred ninetyeth Meeting.

MAY 12, 1909. — ANNUAL MEETING.

The PRESIDENT in the chair.

There were thirty-eight Fellows present.

The Corresponding Secretary read letters from the Società Ligure di Storia Patria, Genova, announcing its fiftieth anniversary, and enclosing a medal struck in commemoration of the event; from the International Committee in honor of Amedeo Avogadro, asking subscriptions for publishing the works of Avogadro and for a monument to be erected at Turin; from the Botanischer Verein der Provinz Brandenburg, announcing its fiftieth anniversary; from the Société de Géographie Commerciale de Bordeaux, announcing the death of its Secretary, M. Julien Manès; from the American Oriental Society, announcing its officers elected April 17, 1909.

The Chair announced the death of Daniel Coit Gilman, Associate Fellow in Class III, Section 2.

The annual report of the Council was read.*

The annual report of the Treasurer was read, of which the following is an abstract:—

GENERAL FUND.

Receipts.

Balance, April 30, 1908	\$ 381.00	
Investments	1,660.33	
Assessments	1,870.00	
Admission fees	90.00	
Rent of offices	1,200.00	\$5,201.33

* See page 747.

Expenditures.

Expenses of House	\$1,390.93	
Expenses of Library	2,533.72	
Expenses of Meetings	149.91	
Treasurer	138.60	
Interest on bonds	68.75	
Charged to reduce premium on bonds . . .	187.50	
Income transferred to principal	224.35	\$4,693.76
Balance, April 30, 1909		507.57
		<u>\$5,201.33</u>

RUMFORD FUND.

Receipts.

Balance, April 30, 1908	\$ 751.18	
Investments	2,969.76	
Sale of publications	5.00	\$3,725.94

Expenditures.

Research	\$900.00	
Periodicals and binding	249.23	
Publication	279.12	
Books	7.50	
Income transferred to principal	134.90	\$1,570.75
Balance April 30, 1909		2,155.19
		<u>\$3,725.94</u>

C. M. WARREN FUND.

Receipts.

Balance, April 30, 1908	\$977.93	
Investments	352.66	\$1,330.59

Expenditures.

Research	\$700.00	
Vault rent (part)	4.00	
Charged to reduce premium on bonds . . .	50.00	
Income transferred to principal	31.64	\$ 785.64
Balance, April 30, 1909		544.95
		<u>\$1,330.59</u>

PUBLICATION FUND.

Receipts.

Balance, April 30, 1908	\$ 344.30	
Appleton Fund investments	639.63	
Centennial Fund investments	2,303.86	
Sale of publications	713.91	\$4,001.70

Expenditures.

Publication	\$3,156.40	
Vault rent (part)	12.50	
Income transferred to principal	139.81	\$3,308.71
Balance, April 30, 1908		692.99
		<u>\$4,001.70</u>

The following reports were also presented: —

REPORT OF THE LIBRARIAN.

The work of cataloguing the library has been continued throughout the past year during such time as Miss Wyman has been able to devote to it. The books on the four upper floors of the stack-building, including the cases of folio plates, are completely catalogued. The cataloguing of the books on the first and second floors is now going on.

The work of completing the sets of society publications now in the library, because of lack of assistance, has not progressed beyond making the list of parts wanting in the various sets. The routine work of the business of the society and library takes all of the Assistant Librarian's time, although as Mrs. Holden lives in the building through the winter months, she gives much extra time to the library work.

The number of bound volumes in the library at the time of the last report was 29,089. 822 volumes have been added during the past year, making the number now on the shelves 29,911. The number added includes 130 old books which were in the fourth story of the house, and not before counted.

89 books have been borrowed from the library by 25 persons, including 20 Fellows, and by 5 libraries.

All the books borrowed during the year except eight have been returned.

The expenses charged to the library are as follows: Miscellaneous, \$476.25 (which includes \$141.00 for cataloguing); Binding, \$555.60 General, and \$84.55 Rumford, Funds; Subscription, \$501.87 General,

and \$164.68 Rumford, Fund; making a total of \$1057.47 for the General, and \$249.23 for the Rumford, Funds, as the cost of subscriptions and binding. Of the appropriation of \$50 from the Rumford Fund for books, only one book has been purchased, at a cost of \$7.50, although more have been ordered, and will probably be received soon.

A. LAWRENCE ROTCH, *Librarian*.

May 12, 1909.

REPORT OF THE RUMFORD COMMITTEE.

During the year 1908-09 the Committee has made grants in aid of researches in light and heat as follows:—

June 10, 1908. Professor Norton A. Kent, of Boston University, for the purchase of a set of echelon plates or other similar apparatus for his research on conditions influencing electric spark lines \$400

Professor Joel Stebbins, of the University of Illinois, an addition to a former appropriation for his research on the use of selenium in stellar photometry 100

Jan. 13, 1909. Professor W. W. Campbell, of the Lick Observatory, for the purchase of a Hartmann photometer to be used in the measurement of polarigraphic images of the solar corona 250

Feb. 10, 1909. Professor R. W. Wood, of the Johns Hopkins University, for his research on the optical properties of mercury vapor 150

May 12, 1909. Professor M. A. Rosanoff, of Clark University, for his research on the fractional distillation of binary mixtures. 300

Professor C. E. Mendenhall, of Wisconsin University, for his research on the free expansion of gases 300

Reports regarding the progress of their respective investigations have been received from Messrs. P. W. Bridgman, E. B. Frost, L. J. Henderson, L. R. Ingersoll, N. A. Kent, F. E. Kester, A. B. Lamb, H. W. Morse, E. F. Nichols, A. A. Noyes, J. A. Parkhurst, T. W. Richards, F. A. Saunders, J. Stebbins, J. Trowbridge, and R. W. Wood.

Since the last annual meeting the following papers have been published in the Proceedings, at the expense of the Rumford Fund:—

"A New Method for the Determination of the Specific Heat of Liquids." T. W. Richards and A. W. Rowe. June, 1908.

"Concerning the Use of Electrical Heating in Fractional Distillation." T. W. Richards and J. H. Mathews. June, 1908.

"Crystal Rectifiers for Electric Currents and Electric Oscillations." G. W. Pierce. March, 1909.

The Committee has authorized the purchase of various missing volumes and numbers needed to complete the sets of certain periodicals belonging to the library of the Academy.

At two successive meetings held on February 10 and March 10, 1909, the Committee unanimously voted to recommend to the Academy that the Rumford Premium be awarded to Professor Robert W. Wood, of Johns Hopkins University, for his Discoveries in Light, and particularly for his Researches on the Optical Properties of Sodium and other Metallic Vapors.

CHARLES R. CROSS, *Chairman*.

May 12, 1909.

REPORT OF THE C. M. WARREN COMMITTEE.

The C. M. Warren Committee beg leave to report that grants have been made during the past year to the following persons, in aid of the researches specified : —

Professor A. W. Foote, Yale University, for his research on the nature of precipitated colloids \$300

R. C. Tolman, Research Laboratory, Massachusetts Institute of Technology, to aid in the construction of a centrifuge for the measurement of the electro-motive forces produced by the action of centrifugal forces 150

Reports have been received from Dr. Frederic Bonnet, Jr., from Professor Walter L. Jennings, and Professor James F. Norris, in regard to researches for which money has been contributed from the Warren Fund. None of these researches are yet ready for publication, but it is hoped all will be completed during the coming year.

LEONARD P. KINNICUTT, *Chairman*.

May 12, 1909.

REPORT OF THE PUBLICATION COMMITTEE.

Between May 1, 1908, and May 1, 1909, there were published six numbers of Volume XLIII (Nos. 17-22), and seventeen numbers of Volume XLIV of the Proceedings, likewise two biographical notices, making in all 616 + v pages and nine plates. Two numbers of Volume XLIII (Nos. 18 and 21), and one number of Volume XLIV (No. 12) were paid for from the income of the Rumford Fund. Seven numbers of the Proceedings, Volume XLIV (Nos. 18-24) are in press.

One Memoir (Volume XIII, No. 6, pp. 217-469, plates xxxviii-lxxi) has been published as the final number of Volume XIII.

On May 1, 1908, there was an unexpended balance of \$153.45 to the credit of the Publication Committee. The Academy appropriated \$2400 for publications, and the income from sales, including \$318.76 received from the author of the Memoir, has amounted to \$713.91. The total amount available was therefore \$3267.36. Bills have been approved by the chairman of the Committee to the amount of \$3156.40, leaving an unexpended balance of \$110.96.

Bills amounting to \$279.12 incurred in publishing papers approved by the Rumford Committee have been forwarded to the chairman of that Committee for approval.

EDWARD L. MARK, *Chairman.*

May 12, 1909.

REPORT OF THE HOUSE COMMITTEE.

During the year 1908-09 the Academy's House has been occupied just as heretofore.

At the beginning of the year we had to our credit, as a balance in hand from the previous year, thirty-eight cents (.38). For the expenses of the year just elapsed, twelve hundred dollars (\$1200) was appropriated in May 1908, and three hundred dollars (\$300) in March 1909, making fifteen hundred dollars and thirty-eight cents (\$1500.38).

During the year bills for current expenses have been approved to the amount of thirteen hundred and ninety dollars and ninety-three cents (\$1390.93), leaving in the Treasurer's hands a balance to our credit of one hundred and nineteen dollars and forty-five cents (\$119.45).

WILLIAM R. WARE, *Chairman.*

May 12, 1909.

FINANCIAL REPORT OF THE COUNCIL.

The income for the year 1909-10, as estimated by the Treasurer, is as follows:—

GENERAL FUND	{ Investments	\$1487.67	
	{ Assessments	1800.00	
	{ Rent of offices	<u>1200.00</u>	\$4487.67
PUBLICATION FUND	{ Appleton Fund	\$ 639.63	
	{ Centennial Fund	<u>2299.11</u>	\$2938.74
RUMFORD FUND	Investments		\$2850.76
WARREN FUND	Investments		\$ 277.66

The above estimates, less 5 per cent to be added to the capital, leave an income available for appropriation as follows :—

General Fund	\$4263.29
Publication Fund	2791.80
Rumford Fund	2708.22
Warren Fund	263.78

The following appropriations are recommended :—

GENERAL FUND.

House expenses	\$1450	
Library expenses	1400	
Books, periodicals, and binding	1050	
Expenses of meetings	50	
Treasurer's office	<u>150</u>	\$4100

PUBLICATION FUND.

Publication	\$2500
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RUMFORD FUND.

Research	\$1000	
Periodicals and binding	150	
Books and binding	50	
Publication	700	
To be used at discretion of Committee	<u>808</u>	\$2708

WARREN FUND.

Research	\$ 250
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In accordance with the recommendation in the foregoing report it was

Voted, To appropriate for the purposes named the following sums :—

From the income of the General Fund, \$4100.

From the income of the Publication Fund, \$2500.

From the income of the Rumford Fund, \$2708.

From the income of the C. M. Warren Fund, \$250.

On the motion of the Treasurer, it was

Voted, That the assessment for the ensuing year be ten dollars (\$10).

On the recommendation of the Rumford Committee, it was
Voted, To award the Rumford Premium to Professor Robert
 W. Wood for his discoveries in light, and particularly for his
 researches on the optical properties of sodium and other metallic
 vapors.

The annual election resulted in the choice of the following
 officers and committees:—

JOHN TROWBRIDGE, *President*.

ELIHU THOMSON, *Vice-President for Class I.*

HENRY P. WALCOTT, *Vice-President for Class II.*

JOHN C. GRAY, *Vice-President for Class III.*

EDWIN H. HALL, *Corresponding Secretary.*

WILLIAM WATSON, *Recording Secretary.*

CHARLES P. BOWDITCH, *Treasurer.*

A. LAWRENCE ROTCH, *Librarian.*

Councillors for Three Years.

WILLIAM R. LIVERMORE, of Class I.

THEOBALD SMITH, of Class II.

CHARLES R. LANMAN, of Class III.

Finance Committee.

JOHN TROWBRIDGE,

ELIOT C. CLARKE,

FRANCIS BARTLETT.

Rumford Committee.

CHARLES R. CROSS,

ARTHUR G. WEBSTER,

EDWARD C. PICKERING,

ELIHU THOMSON,

ERASMUS D. LEAVITT,

THEODORE W. RICHARDS,

LOUIS BELL.

C. M. Warren Committee.

LEONARD P. KINNICUTT,

THEODORE W. RICHARDS,

HENRY P. TALBOT,

ARTHUR A. NOYES,

CHARLES R. SANGER,

GEORGE D. MOORE,

JAMES F. NORRIS.

The following standing committees were chosen:—

Publication Committee.

CHARLES R. SANGER, of Class I,
WALTER B. CANNON, of Class II,
MORRIS H. MORGAN, of Class III.

Library Committee.

HARRY M. GOODWIN, of Class I, SAMUEL HENSHAW, of Class II,
HENRY W. HAYNES, of Class III.

Auditing Committee.

A. LAWRENCE LOWELL, FREDERIC J. STIMSON.

House Committee.

WILLIAM R. WARE, A. LAWRENCE ROTCH,
 LOUIS DERR.

On motion of H. C. Ernst the following Standing Vote was adopted:—

10. No report of any paper presented at a meeting of the Academy shall be published by any member without the consent of the author, and no report shall in any case be published by any member in a newspaper as an account of the proceedings of the Academy.

The following gentlemen were elected members of the Academy:—

Arthur Woolsey Ewell, of Worcester, as Resident Fellow in Class I., Section 2 (Physics).

Francis Gano Benedict, of Boston, as Resident Fellow in Class II., Section 3 (Zoölogy and Physiology).

William Wallace Fenn, of Cambridge, as Resident Fellow in Class III., Section 4 (Literature and the Fine Arts).

Gardiner Martin Lane, of Boston, as Resident Fellow in Class III., Section 4 (Literature and the Fine Arts).

James Hardy Ropes, of Cambridge, as Resident Fellow in Class III., Section 4 (Literature and the Fine Arts).

Vesto M. Slipher, of Flagstaff, Arizona, as Associate Fellow in Class I., Section 1 (Mathematics and Astronomy).

Hermann Georg Jacobi, of Bonn, as Foreign Honorary Member in Class III., Section 2 (Philology and Archæology).

Frederick James Furnivall, of London, as Foreign Honorary Member in Class III., Section 4 (Literature and the Fine Arts).

Dr. Theodore Lyman gave a communication entitled "A Vacation Trip to East Africa."

The following paper was presented by title :—

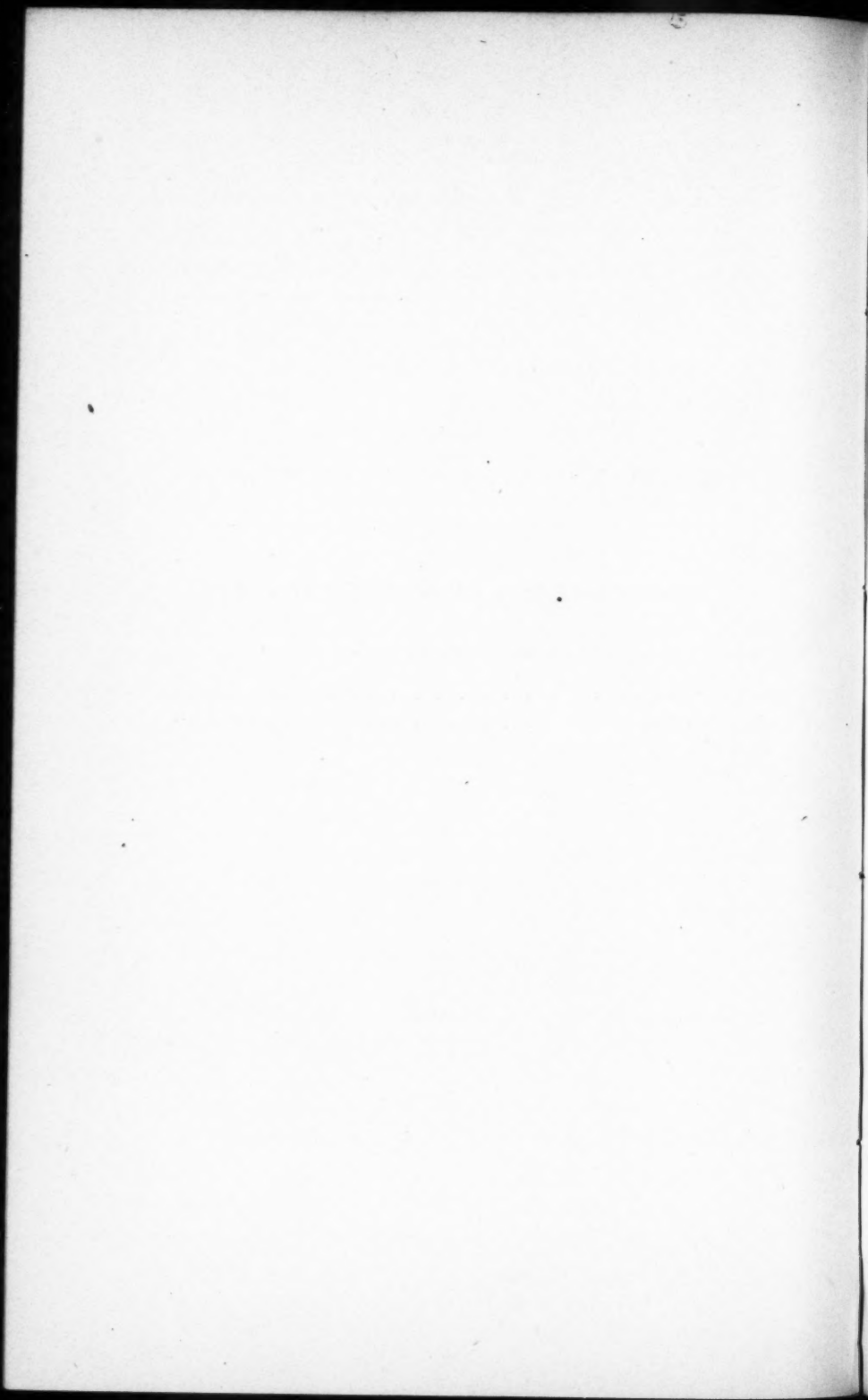
"The Burmese and Cingalese Tradition of Pāli Texts." By C. R. Lanman.

AMERICAN ACADEMY OF ARTS AND SCIENCES.

REPORT OF THE COUNCIL. — PRESENTED MAY 12, 1909.

BIOGRAPHICAL NOTICE.

GUSTAVUS HAY BY WILLIAM E. BYERLY.
CHARLES FOLLEN FOLSOM BY JAMES JACKSON PUTNAM.



REPORT OF THE COUNCIL.

Since the last report of the Council the deaths of ten members have been noted : three Resident Fellows, — Charles Eliot Norton, John H. Wright, Frederick I. Knight ; four Associate Fellows, — James D. Hague, Wolcott Gibbs, W. K. Brooks, D. C. Gilman ; four Foreign Honorary Members, — Sir John Evans, E. de Amicis, Gaston Boissier, Julius Thomsen.

DR. GUSTAVUS HAY.

DR. GUSTAVUS HAY was born in Boston on the eleventh of March, 1830. After going through the Boston Latin School he entered Harvard College at fifteen, and on completing successfully his four years' course he took the unprecedented step of petitioning the Faculty to be allowed to remain for a second Senior year, and thus received his degree of Bachelor of Arts with the class of 1850. He then entered the recently founded Lawrence Scientific School, where the most advanced educational theories were being put to the test, and took the degree of Bachelor of Science with honors in 1853.

By this time he had formed the "Harvard habit"; he was young, scholarly, and with no special professional bent. Neither theology nor law attracted him. There was only one other department of the University untested, so he entered the Harvard Medical School in 1854, and took the degree of Doctor of Medicine in 1857. Then accident turned his attention toward ophthalmology, and he went abroad to study that subject in Vienna, and on his return he began his long and successful practice as an oculist.

He was married in 1863 to Maria Crehore, who died a dozen years later, and in 1881 to Miriam Parsons, who survives him.

In 1861 he was appointed Surgeon at the Massachusetts Eye and Ear Infirmary, and held that position till 1873, and thereafter that of Consulting Surgeon till 1900.

He was a member of the American Academy and the American Mathematical Society; a member, and from 1873 to 1878 vice-

president, of the American Ophthalmological Society, and one of the founders of the New England Ophthalmological Society.

After nearly fifty years of active and successful practice as an oculist at his office in Charles Street, and later in Marlboro Street, he retired in 1904, and died at his home in Jamaica Plain on the twenty-sixth of April, 1908, at the ripe age of seventy-eight.

Of the teachers under whom he studied during his residence in Cambridge as a Harvard undergraduate and as a member of the Lawrence Scientific School the one who made by far the deepest impression on his mind and character was Professor Benjamin Peirce, for whom and for whose favorite science his feeling was ever akin to reverence. Indeed to the end of his life, in spite of his mastery of his profession and his success in its practice, the love of mathematics held first place in his heart; and with him, as with many of the pupils of Benjamin Peirce, it was a romantic love, something that partook almost of the nature of religion. To it he always turned in his leisure moments as a solace and a joy.

His mathematical library, which was as well selected and almost as large as his medical library, was nearly as much used.

He was especially interested in the modern investigations into the foundations of geometry, and his one contribution to the Proceedings of the Academy, "On a Postulate respecting a Certain Form of Deviation from the Straight Line in a Plane," was on that subject.

Naturally his published contributions to science are mainly in the line of his profession: cases reported in the Boston Medical and Surgical Journal, contributions to the Archives of Ophthalmology, and numerous papers in the Transactions of the American Ophthalmological Society.

Of these papers a very considerable proportion are really mathematical investigations into optical problems, and one of the most important of them, "On the Position of the Eyeball during the Listing Rotation," — which showed that apparently contradictory results, reached and published by Helmholtz and Donders, which had caused much confusion and controversy among oculists, were really consistent, — might have been written by Poinsot.

Dr. Hay was one of the most kindly and helpful, as well as most modest, of men. A fellow oculist says of him: "I need hardly write to you of Dr. Hay's many sterling qualities or of the esteem and affection with which he was regarded by his colleagues, especially by those who came into close contact with him; and yet I would say a word. He was always ready to give liberally of his time and thought to aid the younger members of the profession who sought his advice. Person-

ally I feel a great debt of gratitude for his aid and encouragement when I began the study of ophthalmology, and he was ever an interesting and interested and stimulating friend. He was one of the most valued members of the American Ophthalmological Society, was vice-president from 1873 to 1878, and would have been president had not his extreme modesty led him to decline the office; yet in spite of his retiring disposition he more than once took a stand in opposition to a popular judgment when he believed it to be an unjust one."

DR. CHARLES FOLLEN FOLSOM.

WHEN the news of the death of Dr. Charles Follen Folsom was telegraphed from New York to Boston, on August 20, 1907, a large circle of persons — social acquaintances, patients, and professional colleagues — felt that they had lost the support of a faithful adviser, the companionship of a dear friend.

It is a fortunate asset of the physician's life that he enters into intimate personal relationships with many of the individuals who turn to him for advice, and has an unusual chance to cultivate his powers of sympathy. But there have been few physicians of this neighborhood and generation in whom these fires of personal sympathy have burned so warmly as they did in Dr. Folsom, or who have been able to inspire with reciprocal emotions so many of their patients and their friends. The growth of these attachments was genuine and unforced, for they were based on well-grounded affection and respect.

Dr. Folsom had settled in Boston, with a record of two years' faithful service for the freedmen, but without influential connections and with no instinct for advertisement of himself. He showed, however, marked ability as a practitioner, marked willingness to labor for results worth having, a high standard of thoroughness and obligation, and the highest possible standard of friendship, and it was not long before these qualities made him a real figure among real men and women in our community. Some extracts from a letter to his intimate friend, Rev. William C. Gannett, written about 1881, will recall some of his characteristic traits. He says: "... I do not agree with you as to not making friends, even if it does hurt to tear up the roots. Go as deep, say I, into as many human hearts as you can. Never lose a single chance for knowing one person, even, well. In fact, it is the only thing in the world that pays. You do other things because you must, or it is your duty to do so, but that does not pay. You do not get back anything, and the volcano inside of one only rumbles and growls to itself

instead of letting its smoke and brimstone out in the world,* whereas in knowing people well you get more than you give."

"Yes, I am going to Munich to study with Pettenkofer and Voit and Wolfhügel. I have the work to do and I want to do it as well and as much of it as I can.

"But I do not care when I stop, whether next year or next week or next century. So long as the machine runs, I want to keep some useful spindles going.

"I suppose I shall say Good-bye, next month, to many I may not see again, but I can't think of the 'gradual forgetting'; that seems hardly possible, and life is too short and too full of disagreeable things to ever forget one pleasant friend."

In another letter in which he discusses with deep feeling the sacrifice he made in relinquishing the practical work of a physician for the secretaryship of the Board of Health, he writes: "I have always been strongly drawn to a life which will be one to bring me in close relations with individuals needing help." And again, in the same letter, "If people will only place their ideals high enough, they may easily or with a fight make them real. . . . You know that I am conscientious from sense of duty, if at all, and not, like you, by instinct, and that duty does not come naturally to me, but only after toil and a fight."

The sentiments indicated by these citations point to Dr. Folsom's general characteristics and his plan of life; and the remarkable depth of feeling on the occasion of his death, shared in by the many persons whom he had befriended with his wise counsel and his generous purse, or who had worked side by side with him and knew his efficiency, his intelligence, his fidelity, and his power of accomplishment, is a sufficient warrant that the plan was carried out.

The feeling expressed by the word "loyalty," which underlies the best instincts of the moral life, was a fundamental feature of his character.

Charles Folsom was born in Haverhill, Massachusetts, April 3, 1842, the fifth of eight children. His father moved to Meadville, Pennsylvania, when Charles was but seven years old, and it was there that his boyhood was mainly spent. The life was simple and uneventful, but his was a case where in the boy could be read in great measure the character of the man. He gained new traits as he grew older, but lost none that were of value. Sweetness and evenness of temper, affectionateness, a strong instinct of helpfulness, untiring industry, skill in the use of brains and hands, — qualities such as these made him uni-

* The order of the clauses in this sentence have been slightly changed, for greater clearness.

versally beloved. "The best boy in school and the foremost in scholarship" was the judgment of his teachers and school-fellows. It is a good test of a boy to be tried as the playmate of his younger sisters, and Charles was held by his an older brother without peer.

Both of his parents were natives of Portsmouth, New Hampshire. The major portion of his ancestors on both sides were of the English race, but the progenitors of the American branches came early to New England, the Folsoms * settling in Exeter, New Hampshire, and the Penhallows, whose name his mother bore, in Portsmouth. They were all active, respected people, many of them prominent in public life.

Nathaniel Smith Folsom, Dr. Folsom's father, was graduated one of the foremost in a somewhat notable class at Dartmouth College in 1828. He studied for the ministry at the Andover Theological Seminary, but was soon in the ranks of the Unitarians, and after some years of pastoral work in New England was appointed (in 1849) to a professorship in the Theological School at Meadville. He was a fine classical scholar, high-minded and conscientious. From him, as well as from his mother, Charles inherited the instinct for service to his fellow-men that was so prominent in his nature.

Mrs. Folsom was a woman of rare sweetness and evenness of temper, of fine and strong character, with the fidelity to duty and the steadiness of purpose that had been dominant traits in her family for generations.

In 1861 Mr. Folsom resigned the professorship in Meadville, and in 1862 moved to Concord, Massachusetts, where he engaged in teaching. Here the family remained for many years. I recall with pleasure a short visit to them at that place, a cross-country walk with Dr. Folsom, then a medical student, and the impression made upon me by his gentle, quiet manner, his simplicity and his love of nature. But during most of the Concord period he was away from home, at Port Royal, or studying his profession, and before this he was at Exeter Academy and Harvard College, where he was graduated with his class in 1862, the second year of the war.

Dr. Folsom would have enlisted in the army but for the solicitation of his parents. An elder brother was then living in the South and had been drafted into the Confederate ranks, and they could not bear the thought of their two sons meeting upon opposite sides. This brother was heard from once during the war, through a weather-beaten letter which he managed to get smuggled through the lines, and it was afterwards positively ascertained that he had fallen in 1862. Instead of entering the army, Dr. Folsom offered his services to aid in carrying out

* The name of the first settler (1638) was written Foulsham.

the newly organized enterprise in behalf of the freedmen at Port Royal, and was sent to the island of St. Helena, where he remained for the next two years. The Port Royal enterprise, so far as the volunteer element in it was concerned, was the outcome of the sense of responsibility for the negroes on the part of Northern sympathizers with the movement of abolition. Dr. Folsom's father was an ardent abolitionist and this move on his son's part had his warm encouragement; there is some reason, indeed, to think that he suggested it. The story of the movement is well told in a recent book entitled "Letters from Port Royal," edited by Elizabeth Ware Pearson. Early in the war * the Sea Islands region of South Carolina, in the neighborhood of Port Royal and Beaufort, became, all of a sudden, untenable for its Southern occupants in consequence of the capture of two forts by Commodore Dupont, and the great plantations there were at once abandoned by their owners, who fled precipitately, leaving behind them several hundred negroes, incapable of caring for themselves, and a vast amount of cotton nearly ready for exportation. Not only this, but refugee negroes soon came pouring in, so that the number finally reached several thousand. Cotton agents were sent down by the Government to look after the cotton, and Mr. Edward L. Pierce of Milton was placed in charge of the negro problem and of the work of planting next year's crop. Mr. Pierce sought at once the aid of private citizens, at first in Boston, then in New York and Philadelphia. A Freedmen's Aid Society was formed, and very quickly a band of the best people of the North was under way, sufficiently well equipped in money, ability, and ardent devotion to the cause, but destitute of training or experience, to face the problems of "the housekeeper, the teacher, the superintendent of labor, and the landowner," under conditions strange and new. Especially prominent among them was Mr. Edward S. Philbrick of Boston, but the group comprised many other persons of intelligence and devotion, college graduates and women of the best sort. "For the first time in our history educated Northern men had taken charge of the Southern negro, had learned to know his nature, his status, his history, first-hand, in the cabin and the field. And though subsequently other Southern territory was put into the hands of Northern men and women to manage in much the same fashion, it was not in the nature of things that these conditions should ever be exactly reproduced. The question whether or not the freedman would work without the incentive of the lash was settled once for all by the Port Royal Experiment."

* L. c. Preface.

It was a difficult task that was set before this company of willing but untried philanthropists, and it was well done. "Keenly as they felt the past suffering and the present helplessness of the freedmen, they had the supreme common-sense to see that these wrongs could not be righted by any method so simple as that of giving. They saw that what was needed was, not special favor, but even-handed justice. Education, indeed, they would give outright; otherwise they would make the negro as rapidly as possible a part of the economic world, a laborer among other laborers. All that has happened since has only gone to prove how right they were."

It was natural that friendships formed among fellow-workers under conditions such as these should be warm and lasting, and the small group of men and women of which Charles Folsom formed a member during the two years of their common labors in field and cabin on St. Helena Island remained firmly bound through life. Dr. Folsom's nearest friends were William C. Gannett and Miss Mary E. Rice, with whom he afterwards freely corresponded, Edward W. Hooper, and Charles P. Ware. Mr. Gannett in a recent letter writes as follows: "While we were together in Freedmen's work on St. Helena Island, in 1862-1864, he lived for a long time in our home, — Miss Rice's and mine; I remember well, when the malaria caught me, how he used to sit on my sick bed and tell stories until the room rang with our laughter, and how he journeyed ten or twelve miles to Beaufort and back through the sand just to get me a little ice for the fever."

The Port Royal experience was in some respects a disastrous one for Dr. Folsom, since he there received an accidental gun-shot wound in his arm which caused him a great deal of pain, and in addition contracted malaria and a valvular disease of the heart, both of which troubles are believed to have contributed more or less directly to his death. He also began to suffer from severe neuralgic headaches at about this time, due partly to the shot-gun accident,* partly, perhaps, to the malaria, and on this account he was advised by his physician, on his return to Boston, in 1865, to make a long voyage by sea. Following this advice he went around the Horn to San Francisco as passenger on a sailing vessel, and came back before the mast, much improved in health though not quite relieved of his headaches, which continued to trouble him during his medical studies and even later. He writes to Miss Rice of his experiences on this voyage: "How amused you would have been to see the calm and stately way in which I wash down decks

* Some of the shot lodged in the scalp, and many, though perhaps not all of them, were extracted some years later.

every morning, broom in one hand, water-bucket in the other, in my bare feet, shirt sleeves rolled up to my elbows, pants rolled up to my knees; or could you but see my dignified roll as I cross the main deck, slinging a tar bucket over one shoulder and the grease pot over the other; or the sad amble as I pace the deck in the lonely midnight watch, chanting the 'Gideonite's Lament' or 'Katie's gone to Roxbury.' I am exceedingly glad that I took the trip, and especially that I returned a tarry sailor as I did. It gave me insight into a new phase of life, and I am sure the benefit has been greater than if I had come back a passenger." Mr. Gannett recalls the following incident, important for our purpose: "A sailor fell from aloft, and broke himself all to pieces so hopelessly that they left him in a huddle to die. Folsom * could not stand that, went to work with what knowledge he had, patched him together as well as he could, nursed him, and brought him through alive to New York." This was, as Mr. Gannett says, "his first case," and a worthy one.

In 1866 Charles Folsom decided, after some hesitation, to study medicine. A small and favored portion of the would-be medical students of that period used to spend a few months in taking a preliminary course of Comparative Anatomy under Professor Jeffries Wyman. Dr. Folsom and I took this course together, and vividly do I remember our first meeting. I can see myself lingering about, on a summer morning, in the cool hall-way of Boylston Hall, where Professor Wyman's laboratory lay, watching the door swing open and observing the tall figure of Charles Folsom enter. I well recall his boyish yet thoughtful and intelligent expression, his pleasant smile, his light hair and sun-burnt face, and his plain suit of homespun gray. We were entire strangers to each other then, but on the moment a bond of mutual sympathy was established and we became good friends. Professor Wyman, that rare man and teacher whom every one admired, loved, and trusted, soon recognized Dr. Folsom's ability and worth, and secured for him, a few years later, the Curatorship of the Natural History Museum, a position which he occupied for several years and abandoned with regret.

Between 1866 and 1869 came medical studies, diversified by half a year's tutoring in Charlestown, New Hampshire, which secured him some pleasant acquaintances and a gain in health, though it was felt as a somewhat rasping interruption to his work.

The old custom of supplementing one's class-room studies by serving as assistant in the private office of an established practitioner (even during the medical course) was still followed, to some extent, at that

* Not yet a medical student.

period, and in this way Dr. Folsom made, in 1868, the highly valued acquaintance of Dr. H. I. Bowditch. In a letter to Mr. Gannett, written in October of that year, he says: "Dr. Bowditch is simply splendid. He is one of the purest-minded men I ever knew, and the opportunities for study are very great." I had the privilege of following Dr. Folsom at this task and can warmly testify to its value. The duty of the assistant was to receive the patients in an anteroom of the delightful study at the house on Boylston Street, make full notes of their histories, which were to be submitted afterwards to close scrutiny, and a preliminary diagnosis. Then came the physical examination by Dr. Bowditch, at which the student was often invited to assist, and the frank comments of one of the best men and best physicians of his day. It was "section teaching" in its best form. Dr. Folsom's admiration for Dr. Bowditch was so great and the understanding between them became so fine, that the friendship then established proved one of the great forces in Dr. Folsom's life. There was some question in the next year (1869) whether he should become assistant at the City Hospital or at the Massachusetts General, for which he first applied. It was to the former that he went, and he found reason to congratulate himself for so doing, largely because it brought him again under Dr. Bowditch. It was not alone admiration for Dr. Bowditch's qualities as a man that drew his younger friend so strongly, but similarity in sentiment and opinion, likewise. Both of them had grown up in the atmosphere of abolitionism, and Dr. Bowditch's ardent advocacy, both of that cause and of the natural right of women to do what nature fitted them to do and especially to practice medicine if they wished, was met with quick and active sympathy on Dr. Folsom's part. In later years his cautious and conservative traits came more prominently forward, but the sentiments by which he was mainly moved were always those of unconventionality and freedom.

He strongly advocated the plan of putting a woman physician on the medical board of Danvers Hospital and took an active part in furthering the admission of women to Johns Hopkins Medical School. In the bibliography which follows this paper a reference will be found to an address of his upon this latter subject.

The service at the City Hospital came to an end in the spring of 1870. As soon as it was over Dr. Folsom opened an office on Leverett Street and engaged in private practice, while at the same time he became physician to the Massachusetts Infant Asylum, then recently established. He was for a short time connected also with the Carney Hospital. At these tasks he remained until the spring of 1872, when he obtained a much desired position as assistant at the McLean Asylum,

then in the old familiar grounds at Somerville, and this he kept until the autumn of 1873. He threw himself, indeed, at this period, with great energy into the study of diseases of the mind, and came near to selecting this branch of medicine for his life work. Even as late as 1877 he writes to Mr. Gannett: "The bill has passed the Legislature requiring the Governor to appoint trustees, etc., to Danvers, and the question has been asked me square, whether I w'd be Supt. Although I said no more in reply than that I would *not* say no, I have since decided not to take it, and very largely because —, who knows me for generations back, has convinced me that I am in many respects unsuited for that kind of work."

In the autumn of 1873 he went abroad for the sake of "seeing what asylums are there, etc." He was away about a year, studying mainly in Vienna and Berlin, but visiting also the hospitals of England and of Scotland and making valuable acquaintances. The full letters from Europe during this period (1873-1874), both to the various members of his family and to Mr. Gannett, show sound observation and an active mind. He found the English asylums the best, though by no means above criticism. The brutal manners of the Viennese doctors towards the poorer patients disgusted him, but did not prevent him from appreciating the splendid opportunities of these physicians for study nor their quality as teachers. Man for man he liked his own countrymen the best.

While he was still away an event occurred which proved to be for him of great significance. This was his selection for the secretaryship of the Massachusetts State Board of Health, just then thrown open by the regretted death of Dr. George Derby, a position in which an able physician could do more for the health of his fellow-citizens than in any other way whatever. The State Board of Health had then been in existence just four years. It had owed its life to the imagination and splendid zeal of Dr. Bowditch, and its remarkable development and career of usefulness at once to his labors and those of his public-spirited and able colleagues, and to the energy and spirit of Dr. Derby, fresh from service as army surgeon in the war and full of interest in matters relating to the public health. The Board as a whole was one of the best that ever served the State. Dr. Bowditch had been chairman from the first, and when the question came up of the appointment of a successor to Dr. Derby it was natural that his thoughts should turn to Dr. Folsom, young, free, of approved character and ability, and possessed already of experience in administrative work.* Dr. Derby died in June, 1874, and Dr. Folsom was appointed

* Dr. Bowditch's personal friendship for Dr. Folsom is testified to by the following note, evidently written at a period when observers had had a chance

on September 12 of the same year, the gap of four months having been filled by Dr. F. W. Draper. The members of the Board at this time, besides Dr. Bowditch, were J. C. Hoadley, C.E., David L. Webster, Richard Frothingham, Robert T. Davis, M.D., and T. B. Newhall. These same members served until 1879, when the departments of health, lunacy and charity were combined and Dr. Folsom was chosen secretary of the united Board.

Dr. Folsom believed that in accepting the appointment as secretary of the State Board of Health he was shaping his life-work, and in the letter to Mr. Gannett, above cited, he continues: "Of course, you can never appreciate the disappointment it cost me to give up the practice of medicine. It seemed like having in my palm something for which I had bent every energy for a dozen years, and then calmly throwing it away, and the silly *hankering* took shape in Danvers as the only practicable form; but that is now gone, like all my other buried hopes at which I can now smile and joke."

The occupations of the conscientious secretary of such a board as this, certainly of this board, are but faintly indicated in his title. His duties cannot all be specified in detail and he does much that passes unrecorded. Besides his labors as recording and executive officer, nothing goes on that does not pass his judgment, feel his touch, receive his contribution. He is the nucleus of the busy cell. The reports are in great part his work, and it is a striking tribute to Dr. Folsom's industry and ability that the volume which was issued on the first of January, 1875, only three months after his appointment, was not only ready at the proper time, but contained a long article by him, implying careful study, upon the meat supply of our cities, with suggestions for its improvement. One of the most important among the numerous and manifold secretary's jobs, and a task that called for good feeling, tact, and judgment of a high order, as well as for firmness and intelligence, was that of going about as inspector, critic, and adviser among the

to realize the quality of the new secretary. Friends of Dr. Bowditch will be reminded by it of the generous warmth which he threw alike into his friendships and his public work.

"BOSTON, June 25.

"MY DEAR DR., — I send by mail the Advertiser of to-day. I felt my heart almost jump as I read the fine compliment paid to you my dear Dr. in the editorial. I certainly echo the wish that you may long continue to occupy the position in which you are growing, not only in yourself, but in the estimation and love of the community. God be praised that you dropped a letter to me from Europe "just in the nick of time." . . .

"Faithfully yours,

"H. I. B."

various towns and villages of the State, in the interests of sanitary reform. It was after one of these trips, in November, 1877, that the North Adams Transcript published a long editorial, impressive with figures and with facts, the opening paragraphs of which here follow.

"As stated in a previous issue, Dr. Charles F. Folsom, Secretary of the State Board of Health, recently visited our village for the purpose of making a thorough investigation into its sanitary condition. For the limited time which he spent here, his work was been remarkably thorough, and the results of his examination, which we publish in full, are of a nature calculated to startle our citizens and awaken a profound interest in an important and heretofore neglected subject."

The investigations with which Dr. Folsom became especially identified (besides the question of meat-supply, above referred to) in the five years that followed his appointment, related to water-supply and the disposal of sewage, vital statistics, and his old love, — diseases of the mind. On these vast problems he made himself an expert, so far as this could be done without actual laboratory work. For this he was not trained, but what he did and what his mental constitution admirably fitted him to do was to scrutinize and estimate and contrast and afterward to summarize the work of other men, in Europe and at home, and then intelligently to form a plan suited for Massachusetts and for Boston. One reason why the work of the State Board at the period of Dr. Folsom's service was so largely given up to questions of water-supply and drainage and the disposal of sewage was that these subjects had begun to attract the public interest in a high degree. This led to legislation by the State authorities and permission to employ experts, the results of whose investigations are given in the successive annual reports. In these inquiries the City of Boston took an active part, and the problem of its sewerage was studied in 1875-1876 by a special commission, consisting of E. S. Cheesborough and Moses Lane as representing the department of civil engineering, and Dr. Folsom as standing for the interests of the public health. This commission was appointed by the city government in February, 1875, only a few months after the nomination of Dr. Folsom to the position of Secretary to the State Board of Health, and the choice of him as a member may therefore be considered as a recognition of his merits. The commission was called on to consider, one by one, a series of important practical problems relating to the sewerage system of the city and the modes by which it could be bettered. One portion of the investigation consisted in a study of the methods of dealing with the sewage-waste adopted in other cities of America and Europe and the experiments in utilizing it through irrigation-farms. The investigation of these matters necessitated an-

other trip to Europe on Dr. Folsom's part (in 1875), during which the material was collected which was published as an appendix to the report of the commission. The plan recommended in this report was, as is well known, the building of the great system of the Metropolitan intercepting-sewer for that portion of the city lying on the south side of the Charles River, with pumping stations at Moon Island, discharging on ebb-tide into the bay. Dr. Folsom afterwards appeared before the Joint Committee on Improved Sewerage and presented an elaborate defence and explanation of this plan, contrasting it with that offered by the Superintendent of Sewers, which he admitted to be cheaper but believed to represent a false economy. The plan advised by the commission was finally adopted, and was carried out, and has proved, in many ways, remarkably successful. The same principle was applied later to the north side. The preliminary investigation had been thorough, the reasoning based on it was convincing, and the conclusions were conservative and sound. Besides contributing to the able and impressive reports made by this commission and by the State Board of Health, with all their many maps and tables, Dr. Folsom read a paper before the American Statistical Association, in April, 1877, in which the sewage-farm question in particular was discussed, on the basis of a remarkable amount of knowledge and of judgment. Other communications on this and kindred subjects had appeared in the Boston Medical and Surgical Journal in the form of letters written during his trip abroad.

As soon as the work of the board with reference to water-supply and drainage began to relax, Dr. Folsom turned his attention again to the duties of the State with relation to insanity and to the general question of the treatment of the insane. In 1877 he published the long article on this subject entitled *Diseases of the Mind*, which was republished in book form. This excellent monograph reviews the history of the treatment of insane patients from the earliest times, and describes with accuracy what was being done and what was being planned in all the great institutions of Europe and America. It tells a striking and highly interesting story. The materials for this work had been collected partly during his visit to Europe in 1875, when he had industriously visited asylums and formed the acquaintance of several prominent alienists, especially in England. With him acquaintance was more than apt to ripen into friendship, and such was the case as regards his relationship to Dr. T. S. Clouston of Edinburgh, perhaps the leading alienist of Great Britain at that day, and a man of warm and fine personal qualities which attracted Dr. Folsom strongly. The friendship between them was strengthened by subsequent visits to Edinburgh on

Dr. Folsom's part and a visit by Dr. Clouston to America. Several of Dr. Folsom's patients spent some time at the pleasant institution of Morningside, under Dr. Clouston's care.

It was within a year after the publication of this paper that Dr. Folsom was offered and declined the superintendency of Danvers Hospital, as above described.

The work of the State Board of Health, extensive as it was, did not prevent him, at this period, from giving a certain amount of time to private practice, especially among the insane, nor from lecturing at the Harvard Medical School. His connection with this school began in 1877 and continued until 1888. He served first as lecturer on hygiene, then gave instruction in both hygiene and mental diseases, and finally became assistant professor of Mental Diseases. His resignation was prompted partly by the lack of proper clinical facilities for teaching, partly by the fact that he had finally decided to withdraw from the exclusive study of diseases of the mind and to devote himself to the work of a general practitioner and consultant. But this is to anticipate, as we still have several interesting years of public work to chronicle.

I have sketched the principal features of his labors as secretary of the State Board of Health as far as 1879. In that year two events of importance for him occurred, namely, the appointment of the Yellow Fever Commission, of which he was made a member, and the submerging of the Board of Health in the combined Board of Health, Lunacy, and Charity, of which he was appointed secretary and of which he was made a member in the following year.

The yellow fever epidemic of 1879-1880 ravaged several of the Southern States, especially those bordering on the Mississippi River, and the National Advisory Commission was appointed to inspect the infected districts and consult with local authorities and officers of public health. As a member of this commission Dr. Folsom visited a number of Southern cities, especially Memphis and New Orleans, and left behind him a pleasant impression of tact, judgment, and good breeding, of which Dr. H. P. Walcott, Dr. Folsom's successor on the Board of Health, still found traces on the occasion of a visit, many years later, to the same localities. The most important result of the trip for Dr. Folsom himself was, however, that it brought him into close contact with Dr. John S. Billings, and laid the basis for one of those enduring friendships in which he was so rich.* This same outbreak of yellow fever

* In a recent letter Dr. Billings writes: "From my first acquaintance with him I had the greatest respect for his judgment, and the frank honesty of the way he gave it, and as we became intimately associated the friendship grew into a warm affection which continued to the end. He was a model

formed the occasion for the establishment of the National Board of Health, and of this Dr. Billings and Dr. H. I. Bowditch were appointed members. There were thus several ties that bound Dr. Folsom's interest to the work of this important Board, and it was only natural that on Dr. Bowditch's retirement, in 1882, Dr. Folsom should be chosen his successor. The work of the Board by that time, to be sure, was already waning under the inanition treatment to which it was subjected by the government at Washington, and in the few remaining years of its life it did but little active work. Nevertheless, it served to cement still closer the bond of friendship between Dr. Folsom and Dr. Billings, and also brought the former into wider notice among public men.

The absorption of the Board of Health into the combined Board of Health, Lunacy and Charity, was a matter of profound regret to Dr. Folsom as to Dr. Bowditch, and to all their colleagues. They felt that the co-operative effectiveness of the small group of men who had learned to work so well together was likely to be impaired, and with no compensating benefit. Dr. Bowditch who was appointed on the new Board, but resigned almost at once, partly to gain more time for other labors, partly as a means of expressing his disapproval. Dr. Folsom was made secretary of the new Board, at first with special duties relative to the health department, but resigned in January, 1881, just a year after Dr. Bowditch. He had identified himself with many of the important measures that were adopted by the Board during his brief term of service, and lent his aid to carry into effect a scheme which then, perhaps, seemed to most onlookers to be of much less consequence than it later proved. This was the appointment by the State Board of carefully selected women, from the different towns throughout the State, to act as "Auxiliary Visitors" to the State Board of Health, Lunacy, and Charity, in looking after the girls from the State Primary School at Monson, and the State Industrial School at Lancaster, as well as those committed to the custody of the board itself and placed out with relatives or in other families, while still remaining wards of the State. The appointment of these visitors increased very materially the value of the Board's work in that direction. Similar work had been going on for some years, on a small scale, as an informal outgrowth of the efforts of a few women who had been assisting Colonel Gardiner Tufts, Superintendent of the State Visiting Agency, but it was of great

citizen, giving time and skilled labor to public interests without a thought of personal benefit — a skilled physician, beloved by his patients, and a gentleman in all the best senses of that word. I am proud of the fact that he was my friend."

importance to have the system adopted by the State Board, its value recognized, and its work established on a larger scale.

Besides serving on the State Board Dr. Folsom gave much time during the early eighties to the Danvers Lunatic Hospital, in the establishment of which he had been greatly interested and of which he had been made trustee. In 1881 he read an excellent paper entitled "The Management of the Insane," before the Hospital Trustees Association, discussing and forecasting the conditions needed to make a hospital fulfil its possibilities of efficiency. As usual, practical good sense, thorough information and earnest desire for reform inspire its pages, on one of which he refers to his studies made during five visits in different years to Great Britain. Another paper, on "The Relation of the State to the Insane," was read at the American Medical Association this same year.

In the following year, 1882, occurred the trial of Guiteau for the assassination of President Garfield, followed by his condemnation and execution, notwithstanding the protest of a large number of the best physicians of the country. Dr. Folsom took part in the public discussion of the merits of this case, and in so doing revived an interest in medical jurisprudence which had expressed itself, even in 1875, in a paper entitled "Limited Responsibility: a Discussion of the Pomeroy Case," in 1877 by an article on "Medical Jurisprudence in New York," and in 1880 by an account of "Cases of Insanity and of Fanaticism," devoted mainly to the remarkably interesting case of Freeman, the religious fanatic of the quiet village of Pocasset on Cape Cod who had killed a favorite child under a supposed Divine command. The study of such borderland cases, involving questions of moral and of legal responsibility, continued, indeed, to interest him throughout his life, and it is well known to his friends that he analyzed with extreme care, through several years, the data in the noted case of Jane Toppan. Pomeroy and Jane Toppan he believed to be essentially criminals, Guiteau insane. Freeman he rightly judged a crank of the fanatic type, a product of his environment, and only technically insane. He kept close watch of Freeman from the beginning onward, was instrumental in securing his release on probation from the asylum in which he was confined, and rejoiced at the continued reports of his subsequent good behavior, which have continued to come in even to the present day.

In 1881 Dr. Folsom was appointed physician to out-patients at the Boston City Hospital, and in 1886 he took charge, as visiting physician, of the ward for nervous and renal diseases, which had been established in 1877 at the request of Dr. R. T. Edes, and of which Dr. Edes

and Dr. S. G. Webber had been the first physicians. This ward had been devoted partly to nervous and partly to renal diseases, but even thus it was the first neurological ward to be established in Boston, and would stand, if it still existed, as the only department in a public institution of this city, with the exception of the Long Island Hospital, where disorders of the nervous system could be systematically and adequately taught and studied under expert supervision. In the year following Dr. Folsom's appointment this ward was given over, to the great sorrow of onlooking neurologists, to the general purposes of the hospital. At the same time Dr. Folsom became a member of the regular visiting staff, and at about the same period made a strong and indeed successful effort to change the character of his private and consulting practice to that of an "internist" or general practitioner.

In 1882 Dr. Folsom was appointed consulting physician to the Adams Nervine Asylum.

In 1886, while still especially interested in nervous diseases, he delivered six lectures on school hygiene,* one of which, "On the Relation of our Public Schools to the Disorders of the Nervous System," was reprinted for distribution. This sort of task, in which his two-fold instincts and training, as a hygienist and as a neurologist, were to be enlisted in the practical service of a concrete set of public needs, was a congenial one to him and was always well performed.

In the next year (1887) he took part in the discussion of another topic of public interest, namely, whether the State should establish a hospital for dipsomaniacs. To this plan he was opposed.

This is perhaps the proper place to mention that Dr. Folsom had been warmly interested for many years in the question of the proper treatment of prostitution. He studied this subject diligently, at home and abroad, and wrote his views upon it at length to Mr. Gannett. Unfortunately he did not publish them, and it would perhaps be unjust to consider them as final. They are, however, of interest as an example of his habitual generosity of sentiment. Like the majority of cultivated men, and especially those who have labored practically in the harness of organized progress, Dr. Folsom was conservative and inclined to see two sides to every proposition. On the other hand, he was by inheritance and by temperament a reformer, a hater of injustice, of oppression, and of immorality. These sometimes conflicting tendencies were all drawn upon in his studies into the question of prostitution. Whatever is to be said of the varied influences and motives

* Given before the teachers in the public schools, under the auspices of the Massachusetts Emergency and Hygiene Association.

at work, the observation of those who fall, he writes, "increases one's admiration for those many persons in all stations of life who lead lives of purity and nobleness, and to whom trial and temptation only give added purity and strength. If people will only place their ideals high enough, they easily or with a fight may make them real. — does not believe this, but I know it."

In the spring of 1886 Dr. Folsom was married to Martha Tucker Washburn, sister of his classmate William T. Washburn, and this fortunate event filled with happiness and serenity the whole remainder of his life. Domestic, affectionate, home-loving, and hospitable, his marriage brought to him as much fulness of satisfaction as any of his friends could have desired. It gave new scope, too, to his hospitality and his strong social instincts, for these traits were eminently characteristic of his wife also, and their table became well known as one where good talk, good fellowship, and good humor in the best sense were to be found. Dr. Folsom had had a wide experience with men, with books, and with affairs; he had a good memory, a good sense of humor, a fondness for a good story and the capacity to tell one, and these characteristics, combined with his real love for his fellow-men, made him a highly acceptable companion.

For a number of years he had been very busy in his private practice and his marriage only increased his zeal in this respect and his opportunities for conducting his work as he desired. To an unusual degree he treated his patients as his friends and made them welcome visitors at his house. This tendency, which was instinctive with him and formed a part of his desire to lead a life which should bring him into close contact "with individuals needing help," was thoroughly sympathized in and actively forwarded by his wife, and materially increased his power for good.

As a diagnostician and practitioner Dr. Folsom was a careful, accurate observer, sound and conservative in judgment and resourceful in meeting practical needs, and it was these qualities rather than an ability and instinct for scientific investigation that brought him his success. His contributions to what might be called pure science were in fact not numerous, and became less so as time went on. It was always the vision of "the individuals needing help" that led him on. The worrying habit might readily have developed itself in him, but he systematically discouraged this tendency and opposed to it a simple and gentle philosophy of living which methodical, well-ordered habits aided to make effective. Generosity was a constant trait throughout his life and for nearly twenty years he contributed substantially to the support of a brother who was ill, and even to the very last to

the education of nieces and nephews. That it was a joy to him to do this, as it had been to contribute to the comfort of his parents' declining years, is shown by the following extract from a letter written in 1901: "Just now I am sending two nieces to school and a nephew to college, and hiring an outside man for my brother, who is ill. Many of the other things I do not care for, it is such a pleasure and such a privilege to do these." His sister writes: "What he was to us all as counsellor could n't well be told — it includes a much wider family circle of cousins and broadens into the same service for patients and friends."

Dr. Folsom's public services did not cease with his resignation from the State Board. In 1891 he was chosen overseer of Harvard College, and to this important post he was repeatedly re-elected, until he had served twelve years. In the spring of 1896 he was one of the commission appointed by the Governor and Council "to investigate the public charitable and reformatory interests and institutions of the Commonwealth; to inquire into the expediency of revising the system of administering the same, and of revising all existing laws in regard to pauperism and insanity, including all laws relating to pauper settlements," etc. The other members of this commission were Mr. William F. Wharton and Professor Davis R. Dewey. Their report, covering a hundred printed pages, was submitted in February, 1897. In 1901 he was offered — so his letters show — the chairmanship of the State Board of Lunacy, but decided to decline this tempting offer. "Think," he writes, "of following in Dr. Howe's footsteps with twice as big a field." In 1903 he was selected as president of the Harvard Medical School Alumni Association. Truly, a rare list of honors and opportunities for service.

As early as 1898 Dr. Folsom resigned his position as visiting physician to the Boston City Hospital,* "long before his usefulness to the institution began to wane," a colleague writes,† and although he was chosen consulting physician in 1901, this appointment was one rather of honor than of active service. The fact was, as many of his friends observed, that Dr. Folsom's policy for several years before his last

* The whole period of Dr. Folsom's active work in connection with the City Hospital, not including his service as assistant, was from December, 1881, to the time of his resignation in 1898. He was first appointed Physician to Out-Patients (December, 1881), then Physician to Out-Patients with Diseases of the Nervous System (November, 1882), then Visiting Physician to Patients with Diseases of the Nervous System (September, 1885), and finally member of the general visiting staff (December, 1886). After his resignation in 1898, he was appointed Consulting Physician in 1901.

† Editorial, Boston Medical and Surgical Journal, August 29, 1907.

visit to Europe had been to withdraw from unnecessary labors, not on account of obvious ill health, and surely not from indolence, but from prudence. In 1899 his horse fell with him, and this accident cost him a broken rib and an attack of pleurisy, and marks the period subsequent to which his strength and power of work were never quite what they had been before. In 1901 he writes to Mr. Gannett: "I am sorry that I do not write to — oftener and to you and to — and that I do not do a lot of extra things in the way of work of all kinds and of social duties and pleasures. But I discovered some time ago that there was not enough of me to go around. Starting in debt and having something to do for others all the time, one has to be economical of his strength if he is going to practise medicine."

Many men would have met this need of economy of strength by longer and more frequent holidays than he took. But, fond as he was of the country, of travel, of new friends, his habit of long years had been to husband his strength by careful living, and not to separate himself far or for long from his patients and his desk. Perhaps he knew himself better than his advisers knew him when he chose this mode of life, or accepted it as a satisfactory one when it seemed forced upon him by his duties. His recreation lay in friendly intercourse, in horseback riding, and, of late years, in absences of short duration at Little Boar's Head, New Hampshire, where he and his wife, with several friends, spent a number of consecutive summers. The final visit to Europe, which at best was to have been of but two months duration, was looked forward to by both his wife and himself with the greater pleasure for the fact that it had been so long postponed. He was pretty well tired before starting, but in essential ways had seemed as well and as serene as common. Perhaps, in fact, he felt less well than he admitted. At any rate, even on the passage outward he seemed poorly, and when in England a constant though slight fever set in and he was unable to obtain the expected pleasure from the visits and excursions that he made. While in London he consulted physicians, among them Sir Lauder Brunton and Sir Almroth Wright, but without avail. During the voyage homeward his fever increased to a high point and he became delirious. On arriving in New York he was taken to the Roosevelt Hospital and carefully tended by Dr. Walter B. James. Here he lay for several weeks, at times improving slightly, at times worse again, but on the whole gradually losing ground. Much of the time his mind wandered a little, but it was striking to note how fully he retained his characteristic patience and his uncomplaining readiness to accept results, whatever they might be. Perhaps he felt sure from the first that he should not get well, and

certainly he once said that he knew he was approaching his end and that "the clock had struck twelve;" but this may be taken rather as a temperamental note of acquiescence than as a conclusion based on evidence. He died at last quietly and without pain.

The examination showed that he had been suffering from an ulcerative, infective endocarditis, with embolisms, to which it was thought his old valvular heart-disease had rendered him susceptible.

It would be easy to multiply testimonials to the character and ability of Dr. Folsom from the words — spoken, written, or printed — of his colleagues and his friends. Perhaps, however, the most fitting close to this brief sketch is given in the final paragraphs of a private letter from Mr. Gannett, who was the oldest and probably the closest of Dr. Folsom's friends. After referring to the fact that at each new meeting following a long interval of separation he found him always "hard at work, the same loyal friend, simple, modest, gentle, high-minded, lovable . . . yet growing in power and in service, . . ." Mr. Gannett goes on to say, "It is strange how well one can know a man's self while knowing so little of his works and days. The reason, no doubt, lies in the same loyalty, — he was loyal to himself; through his growth and success he remained the same man I knew in our youth. I was always grateful for his holding on to me, and counted it an honor. And it seems so easy to hold on to *him* now for the same reason, — now when his greeting no longer waits me in Boston. I happened yesterday to be looking up something about George William Curtis, and came across what Mr. Roosevelt — not yet even Governor — said of him at some club in New York City, not long after his death. He spoke of the serene purity and goodness of character which impressed every one who came in contact with Curtis, — and then said, 'I have used the adjective *serene*, it is a beautiful adjective, and it is the only adjective I know of which is sufficiently beautiful to describe his beautiful character.' I think of Folsom in that way, — the adjective and the noun, and the whole expression apply well to him."

A testimonial of another form deserves especial mention. A large number, nearly seventy, of his friends and patients, "who wished in this way to express their grateful appreciation of Dr. Folsom's unflinching care and skill as a physician, and their admiration for him as a man" (Harvard Bulletin, March 4, 1908), presented Harvard University with a fund of ten thousand dollars for the establishment in the Harvard Medical School of "The Charles Follen Folsom Teaching Fellowship," in Hygiene or in Mental and Nervous Diseases. The issue of the Bulletin in which this gift was announced contains also an

editorial upon Dr. Folsom which concludes as follows: "But it was not as an authority on public health and on mental and nervous diseases or as a College officer that his former patients and colleagues have sought to perpetuate his name in an institution which he loved so well. It was as a friend, perhaps as a host to whom entertaining was a fine art, that they knew him. Wise, firm, kind, and indefatigable, he rarely departed from a sick-room without leaving his patient stronger in mind, if not in body. His constant thoughtfulness of his charges, in health as in illness, was unending, and many a patient owes a sound mind and a sound body to Charles Folsom's sagacity, skill, and loving care. Indeed, it may be said of him more truly than of many physicians and of most men that he was like "rivers of water in a dry place and the shadow of a great rock in a weary land."

JAMES J. PUTNAM.

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SOCIETIES OF WHICH DR. FOLSOM WAS A MEMBER BESIDES THOSE MENTIONED IN THE TEXT.

ASSOCIATION OF AMERICAN PHYSICIANS. Original Member; later, Hon. Member.

AMERICAN MEDICAL SOCIETY.

MASSACHUSETTS MEDICAL SOCIETY.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SOCIETY OF PSYCHIATRY AND NEUROLOGY.

BOSTON SOCIETY OF MEDICAL IMPROVEMENT.

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AMERICAN SOCIAL SCIENCE ASSOCIATION.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

NATIONAL GEOGRAPHICAL SOCIETY.

BOSTON SOCIETY OF NATURAL HISTORY.

READING MASTERS SOCIETY.

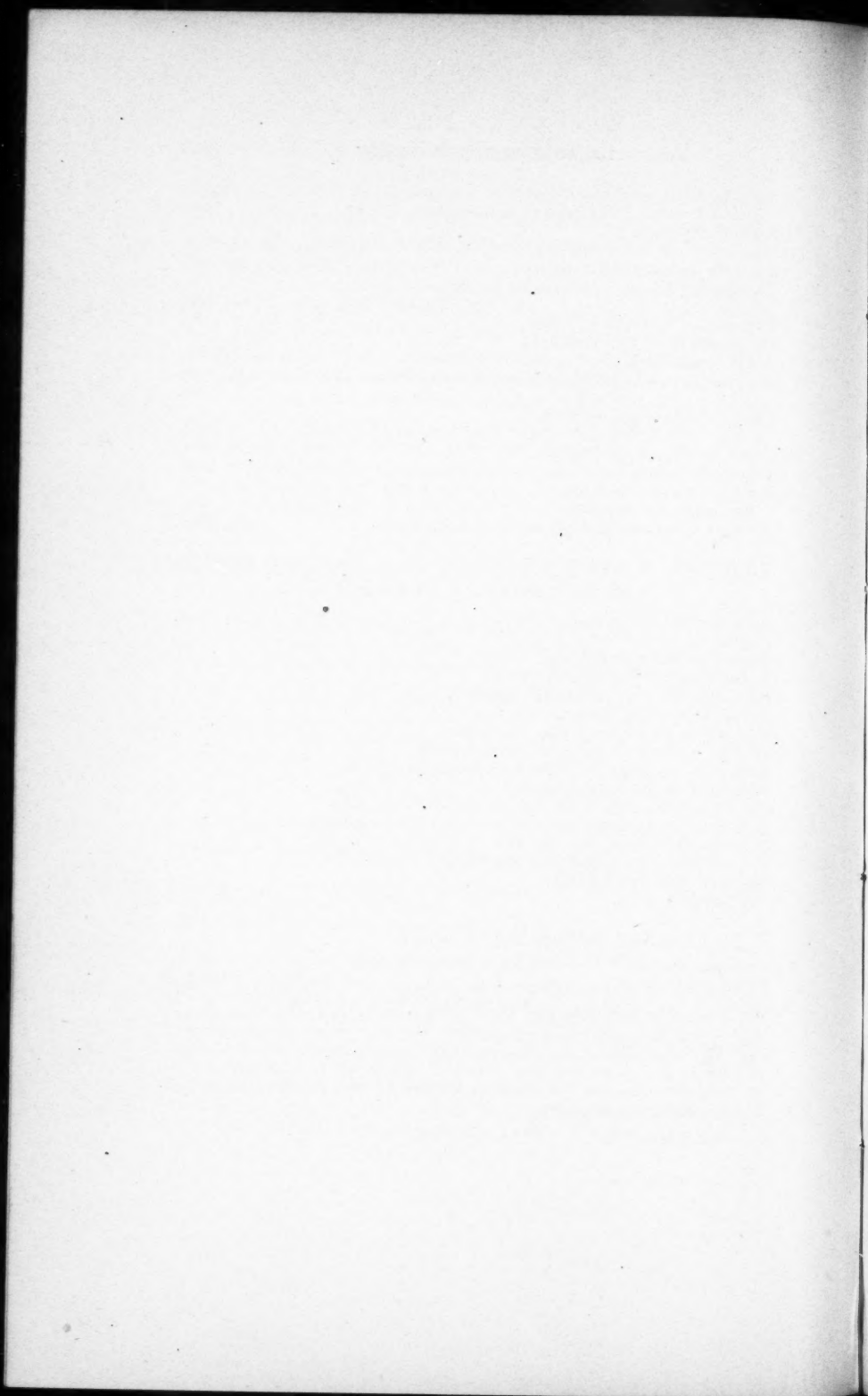
St. BOTOLPH CLUB.

Five Resident Fellows have resigned.

Nine Resident Fellows have been elected.

The roll of the Academy now includes 188 Resident Fellows,
88 Associate Fellows, and 61 Foreign Honorary Members.*

* By the election of new members at the annual meeting of May 12, 1909, and the deaths of two Associate Fellows, not previously noted, the roll stands at date of publication, 193 Resident Fellows, 87 Associate Fellows, and 63 Foreign Honorary Members.



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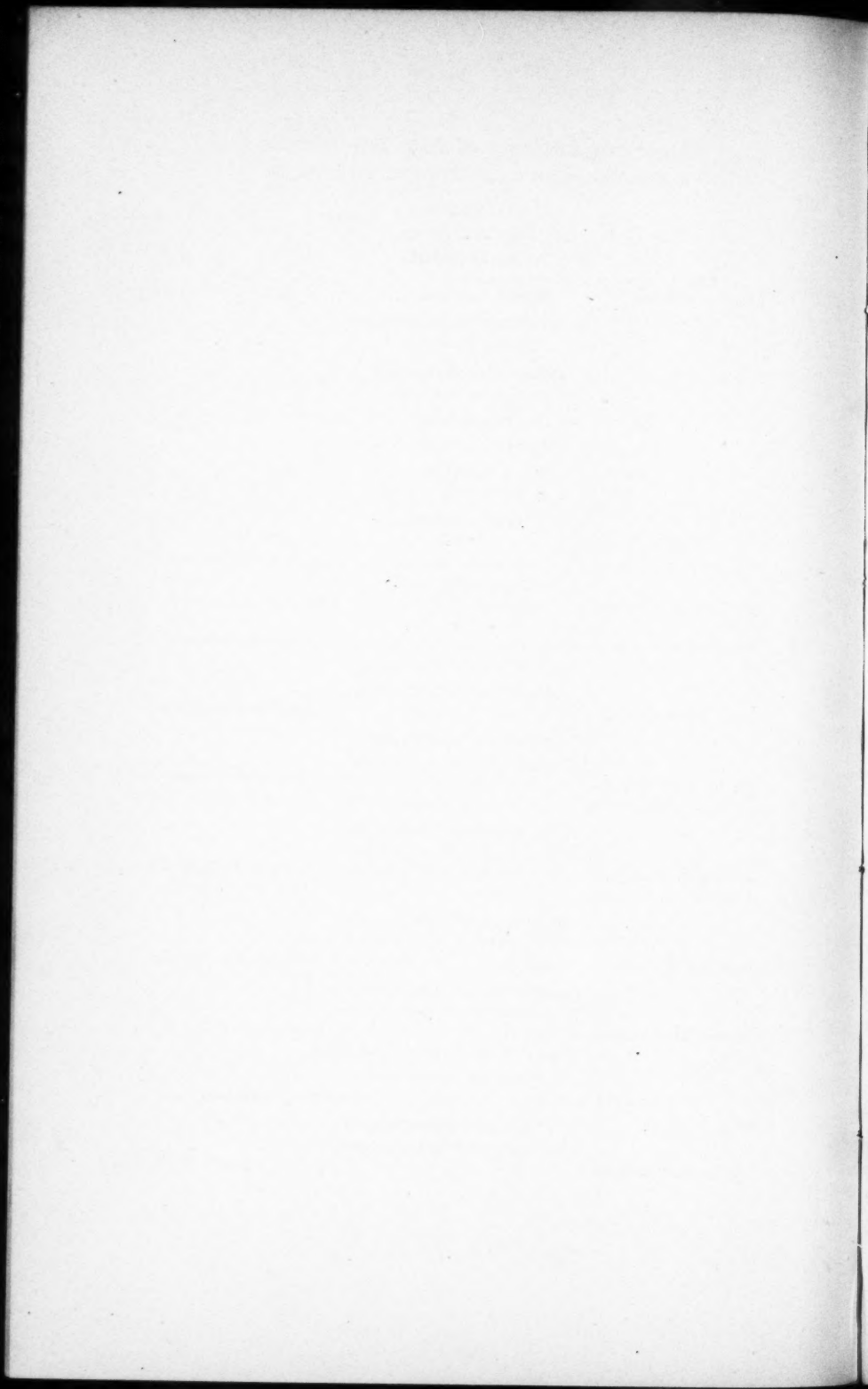
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(Corrected to June 1, 1909.)

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(Number limited to two hundred.)

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Paul Sebastian Yendell	Dorchester

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Harry Manley Goodwin	Roxbury
Edwin Herbert Hall	Cambridge
Hammond Vinton Hayes	Cambridge
William Leslie Hooper	Somerville
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Gaetano Lanza	Boston
Erasmus Darwin Leavitt	Cambridge
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John Elliott Pillsbury	Washington
Robert DeCourcy Ward	Cambridge
Charles Hyde Warren	Auburndale
John Eliot Wolff	Cambridge
Jay Backus Woodworth	Cambridge

SECTION II. — *Botany*. — 11.

Frank Shipley Collins	Malden
William Gilson Farlow	Cambridge
Charles Edward Faxon	Jamaica Plain
Merritt Lyndon Fernald	Cambridge
George Lincoln Goodale	Cambridge
John George Jack	Jamaica Plain
Edward Charles Jeffrey	Cambridge
Benjamin Lincoln Robinson	Cambridge
Charles Sprague Sargent	Brookline
Arthur Bliss Seymour	Cambridge
Roland Thaxter	Cambridge

SECTION III. — *Zoölogy and Physiology*. — 24.

Alexander Agassiz	Cambridge
Robert Amory	Boston
Francis Gano Benedict	Boston
Henry Pickering Bowditch	Jamaica Plain
William Brewster	Cambridge
Louis Cabot	Brookline
Walter Bradford Cannon	Cambridge
William Ernest Castle	Cambridge
Samuel Fessenden Clarke	Williamstown
William Thomas Councilman	Boston
Harold Clarence Ernst	Jamaica Plain
Samuel Henshaw	Cambridge
Edward Laurens Mark	Cambridge
Charles Sedgwick Minot	Milton
Edward Sylvester Morse	Salem
George Howard Parker	Cambridge
James Jackson Putnam	Boston
Herbert Wilbur Rand	Cambridge
Samuel Hubbard Seudder	Cambridge
William Thompson Sedgwick	Boston
William Morton Wheeler	Boston
James Clarke White	Boston
Harris Hawthorne Wilder	Northampton
William McMichael Woodworth	Cambridge

SECTION IV. — *Medicine and Surgery*. — 10.

Edward Hickling Bradford	Boston
Arthur Tracy Cabot	Boston

Reginald Heber Fitz	Boston
Samuel Jason Mixer	Boston
William Lambert Richardson	Boston
Theobald Smith	Jamaica Plain
Oliver Fairfield Wadsworth	Boston
Henry Pickering Walcott	Cambridge
John Collins Warren	Boston
Francis Henry Williams	Boston

CLASS III.—*Moral and Political Sciences.*—51.SECTION I.—*Philosophy and Jurisprudence.*—8.

James Barr Ames	Cambridge
Joseph Henry Beale	Cambridge
John Chipman Gray	Boston
Francis Cabot Lowell	Boston
Hugo Münsterberg	Cambridge
Josiah Royce	Cambridge
Frederic Jesup Stimson	Dedham
Samuel Williston	Belmont

SECTION II.—*Philology and Archæology.*—17.

Charles Pickering Bowditch	Jamaica Plain
Lucien Carr	Cambridge
Franklin Carter	New Haven
Jesse Walter Fewkes	Washington
William Watson Goodwin	Cambridge
Henry Williamson Haynes	Boston
Albert Andrew Howard	Cambridge
Charles Rockwell Lanman	Cambridge
David Gordon Lyon	Cambridge
George Foot Moore	Cambridge
Morris Hicky Morgan	Cambridge
Frederick Ward Putnam	Cambridge
Edward Robinson	New York
Edward Stevens Sheldon	Cambridge
Herbert Weir Smyth	Cambridge
Franklin Bache Stephenson	Boston
John Williams White	Cambridge

SECTION III. — *Political Economy and History.* — 10.

Charles Francis Adams	Lincoln
Thomas Nixon Carver	Cambridge
Andrew McFarland Davis	Cambridge
Ephraim Emerton	Cambridge
Abner Cheney Goodell	Salem
Henry Cabot Lodge	Nahant
Abbott Lawrence Lowell	Cambridge
James Ford Rhodes	Boston
Charles Card Smith	Boston
Frank William Taussig	Cambridge

SECTION IV. — *Literature and the Fine Arts.* — 16.

Francis Bartlett	Boston
Arlo Bates	Boston
Le Baron Russell Briggs	Cambridge
Henry Herbert Edes	Cambridge
William Wallace Fenn	Cambridge
Kuno Francke	Cambridge
Edward Henry Hall	Cambridge
Thomas Wentworth Higginson	Cambridge
George Lyman Kittredge	Cambridge
Gardiner Martin Lane	Boston
William Coolidge Lane	Cambridge
James Hardy Ropes	Cambridge
Denman Waldo Ross	Cambridge
William Robert Ware	Milton
Herbert Langford Warren	Cambridge
Barrett Wendell	Boston

ASSOCIATE FELLOWS. — 87.

(Number limited to one hundred.)

CLASS I. — *Mathematical and Physical Sciences.* — 35.SECTION I. — *Mathematics and Astronomy.* — 13.

Edward Emerson Barnard	Williams Bay, Wis.
Sherburne Wesley Burnham	Williams Bay, Wis.
George Davidson	San Francisco
Fabian Franklin	Baltimore
George William Hill	West Nyack, N. Y.
Edward Singleton Holden	West Point
Emory McClintock	Morristown, N. J.
Eliakim Hastings Moore	Chicago
* Simon Newcomb	Washington
Charles Lane Poor	New York
George Mary Searle	Washington
Vesto Melvin Slipher	Flagstaff, Ariz.
John Nelson Stockwell	Cleveland

SECTION II. — *Physics.* — 6.

Carl Barus	Providence
George Ellery Hale	Williams Bay, Wis.
Thomas Corwin Mendenhall	Worcester
Albert Abraham Michelson	Chicago
Edward Leamington Nichols	Ithaca
Michael Idvorsky Pupin	New York

SECTION III. — *Chemistry.* — 9.

Frank Austin Gooch	New Haven
Eugene Waldemar Hilgard	Berkeley
Samuel William Johnson	New Haven
John William Mallet	Charlottesville, Va.
Edward Williams Morley	West Hartford, Conn.
Charles Edward Munroe	Washington
John Ulric Nef	Chicago
† John Morse Ordway	New Orleans
Ira Remsen	Baltimore

* Died July 11, 1909.

† Died July 4, 1909.

SECTION IV. — *Technology and Engineering.* — 7.

Henry Larcom Abbot	Cambridge
Cyrus Ballou Comstock	New York
William Price Craighill	Charlestown, W. Va.
John Fritz	Bethlehem, Pa.
Frederick Remsen Hutton	New York
William Sellers	Edge Moor, Del.
Robert Simpson Woodward	New York

CLASS II. — *Natural and Physiological Sciences.* — 31.SECTION I. — *Geology, Mineralogy, and Physics of the Globe.* — 9.

Cleveland Abbe	Washington
George Jarvis Brush	New Haven
Thomas Chrowder Chamberlin	Chicago
Edward Salisbury Dana	New Haven
Walter Gould Davis	Cordova, Arg.
Samuel Franklin Emmons	Washington
Grove Karl Gilbert	Washington
Raphael Pumpelly	Newport
Charles Doolittle Walcott	Washington

SECTION II. — *Botany.* — 6.

Liberty Hyde Bailey	Ithaca
Douglas Houghton Campbell	Palo Alto
John Merle Coulter	Chicago
Cyrus Guernsey Pringle	Charlotte, Vt.
John Donnell Smith	Baltimore
William Trelease	St. Louis

SECTION III. — *Zoölogy and Physiology.* — 8.

Joel Asaph Allen	New York
Charles Benedict Davenport	Cold Spring Harbor, N. Y.
Franklin Paine Mall	Baltimore
Silas Weir Mitchell	Philadelphia
Henry Fairfield Osborn	New York
Addison Emory Verrill	New Haven
Charles Otis Whitman	Chicago
Eugene Benjamin Wilson	New York

SECTION IV. — *Medicine and Surgery.* — 8.

John Shaw Billings	New York
William Stewart Halsted	Baltimore
Abraham Jacobi	New York
William Williams Keen	Philadelphia
William Osler	Oxford
Theophil Mitchell Prudden	New York
William Hughes Welch	Baltimore
Horatio Curtis Wood	Philadelphia

CLASS III. — *Moral and Political Sciences.* — 21.SECTION I. — *Philosophy and Jurisprudence.* — 5.

Joseph Hodges Choate	New York
Melville Weston Fuller	Washington
William Wirt Howe	New Orleans
Charles Sanders Peirce	Milford, Pa.
George Wharton Pepper	Philadelphia

SECTION II. — *Philology and Archæology.* — 5.

Timothy Dwight	New Haven
Basil Lanneau Gildersleeve	Baltimore
Thomas Raynesford Lounsbury	New Haven
Rufus Byam Richardson	New York
Andrew Dickson White	Ithaca

SECTION III. — *Political Economy and History.* — 7.

Henry Adams	Washington
George Park Fisher	New Haven
Arthur Twining Hadley	New Haven
Henry Charles Lea	Philadelphia
Alfred Thayer Mahan	New York
Henry Morse Stephens	Berkeley
William Graham Sumner	New Haven

SECTION IV. — *Literature and the Fine Arts.* — 4.

James Burrill Angell	Ann Arbor
Horace Howard Furness	Wallingford, Pa.
Herbert Putnam	Washington
John Singer Sargent	London

FOREIGN HONORARY MEMBERS.—63.

(Number limited to seventy-five)

CLASS I.—*Mathematical and Physical Sciences.*—19.SECTION I.—*Mathematics and Astronomy.*—6.

Arthur Auwers	Berlin
Sir George Howard Darwin	Cambridge
Sir William Huggins	London
Felix Klein	Göttingen
Emile Picard	Paris
Jules Henri Poincaré	Paris

SECTION II.—*Physics.*—5.

Oliver Heaviside	Torquay
Wilhelm Friedrich Kohlrausch	Marburg
Joseph Larmor	Cambridge
John William Strutt, Baron Rayleigh	Witham
Sir Joseph John Thomson	Cambridge

SECTION III.—*Chemistry.*—5.

Adolf, Ritter von Baeyer	Munich
Emil Fischer	Berlin
Jacobus Henricus van't Hoff	Berlin
Wilhelm Ostwald	Leipsic
Sir Henry Enfield Roscoe	London

SECTION IV.—*Technology and Engineering.*—3.

Maurice Lévy	Paris
Heinrich Müller-Breslau	Berlin
William Cawthorne Unwin	London

CLASS II.—*Natural and Physiological Sciences.*—22.SECTION I.—*Geology, Mineralogy, and Physics of the Globe.*—4.

Sir Archibald Geikie	London
Julius Hann	Vienna
Albert Heim	Zurich
Sir John Murray	Edinburgh

SECTION II. — *Botany*. — 6.

Jean Baptiste Edouard Bornet	Paris
Adolf Engler	Berlin
Sir Joseph Dalton Hooker	Sunningdale
Wilhelm Pfeffer	Leipsic
Hermann, Graf zu Solms-Laubach	Strassburg
Eduard Strasburger	Bonn

SECTION III. — *Zoölogy and Physiology*. — 5.

Ludimar Hermann	Königsberg
Hugo Kronecker	Bern
Sir Edwin Ray Lankester	London
Elias Metschnikoff	Paris
Magnus Gustav Retzius	Stockholm

SECTION IV. — *Medicine and Surgery*. — 7.

Emil von Behring	Marburg
Sir Thomas Lauder Brunton, Bart.	London
Angelo Celli	Rome
Sir Victor Alexander Haden Horsley	London
Robert Koch	Berlin
Joseph Lister, Baron Lister	London
Friedrich von Recklinghausen	Strassburg

CLASS III. — *Moral and Political Sciences*. — 22.SECTION I. — *Philosophy and Jurisprudence*. — 5.

Arthur James Balfour	Prestonkirk
Heinrich Brunner	Berlin
Albert Venn Dicey	Oxford
Frederic William Maitland	Cambridge
Sir Frederick Pollock, Bart.	London

SECTION II. — *Philology and Archæology*. — 7.

Ingram Bywater	Oxford
Friedrich Delitzsch	Berlin
Hermann Diels	Berlin
Wilhelm Dörpfeld	Athens
Henry Jackson	Cambridge
Hermann Georg Jacobi	Bonn
Gaston Camille Charles Maspero	Paris

SECTION III. — *Political Economy and History.* — 5.

James Bryce	London
Adolf Harnack	Berlin
John Morley, Viscount Morley of Blackburn	London
Sir George Otto Trevelyan, Bart.	London
Pasquale Villari	Florence

SECTION IV. — *Literature and the Fine Arts.* — 5.

Georg Brandes	Copenhagen
Samuel Henry Butcher	London
Frederick James Furnivall	London
Jean Léon Gérôme	Paris
Rudyard Kipling	Burwash

STATUTES AND STANDING VOTES.

STATUTES.

Adopted May 30, 1854: amended September 8, 1857, November 12, 1862, May 24, 1864, November 9, 1870, May 27, 1873, January 26, 1876, June 16, 1886, October 8, 1890, January 11, and May 10, 1893, May 9, and October 10, 1894, March 13, April 10, and May 8, 1895, May 8, 1901, January 8, 1902, May 10, 1905, February 14 and March 14, 1906, January 13, 1909.

CHAPTER I.

OF FELLOWS AND FOREIGN HONORARY MEMBERS.

1. The Academy consists of Resident Fellows, Associate Fellows, and Foreign Honorary Members. They are arranged in three Classes, according to the Arts and Sciences in which they are severally proficient, viz.: Class I. The Mathematical and Physical Sciences;—Class II. The Natural and Physiological Sciences;—Class III. The Moral and Political Sciences. Each Class is divided into four Sections, viz.: Class I., Section 1. Mathematics and Astronomy;—Section 2. Physics;—Section 3. Chemistry;—Section 4. Technology and Engineering. Class II., Section 1. Geology, Mineralogy, and Physics of the Globe;—Section 2. Botany; Section 3. Zoölogy and Physiology;—Section 4. Medicine and Surgery. Class III., Section 1. Theology, Philosophy, and Jurisprudence;—Section 2. Philology and Archæology;—Section 3. Political Economy and History;—Section 4. Literature and the Fine Arts.

2. The number of Resident Fellows residing in the Commonwealth of Massachusetts shall not exceed two hundred, of whom there shall not be more than eighty in any one of the three classes. Only residents in the Commonwealth of Massachusetts shall be eligible to election as Resident Fellows, but resident fellowship may be retained after removal from

the Commonwealth. Each Resident Fellow shall pay an admission fee of ten dollars and such annual assessment, not exceeding ten dollars, as shall be voted by the Academy at each annual meeting. Resident Fellows only may vote at the meetings of the Academy.

3. The number of Associate Fellows shall not exceed one hundred, of whom there shall not be more than forty in either of the three classes of the Academy. Associate Fellows shall be chosen from persons residing outside of the Commonwealth of Massachusetts. They shall not be liable to the payment of any fees or annual dues, but on removing within the Commonwealth they may be transferred by the Council to resident fellowship as vacancies there occur.

4. The number of Foreign Honorary Members shall not exceed seventy-five; and they shall be chosen from among persons most eminent in foreign countries for their discoveries and attainments in either of the three departments of knowledge above enumerated. There shall not be more than thirty Foreign Members in either of these departments.

CHAPTER II.

OF OFFICERS.

1. There shall be a President, three Vice-Presidents, one for each Class, a Corresponding Secretary, a Recording Secretary, a Treasurer, and a Librarian, which officers shall be annually elected, by ballot, at the annual meeting, on the second Wednesday in May.

2. There shall be nine Councillors, chosen from the Resident Fellows. At each annual meeting, three Councillors shall be chosen, by ballot, one from each Class, to serve for three years; but the same Fellow shall not be eligible for two successive terms. The nine Councillors, with the President, the three Vice-Presidents, the two Secretaries, the Treasurer, and the Librarian, shall constitute the Council. Five members shall constitute a quorum. It shall be the duty of this Council to exercise a discreet supervision over all nominations and elections. With the consent of the Fellow interested, they shall have power to make transfers between the several sections of the same Class, reporting their action to the Academy.

3. The Council shall at its March Meeting receive reports from the Rumford Committee, the C. M. Warren Committee, the Committee on Publication, the Committee on the Library, the President and Record-

ing Secretary, and the Treasurer, proposing the appropriations for their work during the year beginning the following May. The Treasurer at the same meeting shall report on the income which will probably be received on account of the various Funds during the same year.

At the Annual Meeting, the Council shall submit to the Academy, for its action, a report recommending the appropriations which in the opinion of the Council should be made for the various purposes of the Academy.

4. If any office shall become vacant during the year, the vacancy shall be filled by a new election, at the next stated meeting, or at a meeting called for this purpose.

CHAPTER III.

OF NOMINATIONS OF OFFICERS.

1. At the stated meeting in March, the President shall appoint a Nominating Committee of three Resident Fellows, one for each Class.

2. It shall be the duty of this Nominating Committee to prepare a list of candidates for the offices of President, Vice-Presidents, Corresponding Secretary, Recording Secretary, Treasurer, Librarian, Councillors, and the Standing Committees which are chosen by ballot; and to cause this list to be sent by mail to all the Resident Fellows of the Academy not later than four weeks before the Annual Meeting.

3. Independent nominations for any office, signed by at least five Resident Fellows, and received by the Recording Secretary not less than ten days before the Annual Meeting, shall be inserted in the call for the Annual Meeting, which shall then be issued not later than one week before that meeting.

4. The Recording Secretary shall prepare for use, in voting at the Annual Meeting, a ballot containing the names of all persons nominated for office under the conditions given above.

5. When an office is to be filled at any other time than at the Annual Meeting, the President shall appoint a Nominating Committee in accordance with the provisions of Section 1, which shall announce its nomination in the manner prescribed in Section 2 at least two weeks before the time of election. Independent nominations, signed by at least five Resident Fellows and received by the Recording Secretary not later than one week before the meeting for election, shall be inserted in the call for that meeting.

CHAPTER IV.

OF THE PRESIDENT.

1. It shall be the duty of the President, and, in his absence, of the senior Vice-President present, or next officer in order as above enumerated, to preside at the meetings of the Academy; to direct the Recording Secretary to call special meetings; and to execute or to see to the execution of the Statutes of the Academy. Length of continuous membership in the Academy shall determine the seniority of the Vice-Presidents.

2. The President, or, in his absence, the next officer as above enumerated, shall nominate members to serve on the different committees of the Academy which are not chosen by ballot.

3. Any deed or writing to which the common seal is to be affixed shall be signed and sealed by the President, when thereto authorized by the Academy.

CHAPTER V.

OF STANDING COMMITTEES.

1. At the Annual Meeting there shall be chosen the following Standing Committees, to serve for the year ensuing, viz.: —

2. The Committee on Finance to consist of three Fellows to be chosen by ballot, who shall have, through the Treasurer, full control and management of the funds and trusts of the Academy, with the power of investing and of changing the investment of the same at their discretion.

3. The Rumford Committee, to consist of seven Fellows to be chosen by ballot, who shall consider and report to the Academy on all applications and claims for the Rumford premium. They shall also report to the Council in March of each year on all appropriations of the income of the Rumford Fund needed for the coming year, and shall generally see to the due and proper execution of the trust. All bills incurred on account of the Rumford Fund, within the limits of the appropriation made by the Academy, shall be approved by the Chairman of the Rumford Committee.

4. The C. M. Warren Committee, to consist of seven Fellows to be chosen by ballot, who shall consider and report to the Council in March of each year on all applications for appropriations from the income of the C. M. Warren Fund for the coming year, and shall generally see to the due

and proper execution of the trust. All bills incurred on account of the C. M. Warren Fund, within the limits of the appropriations made by the Academy, shall be approved by the Chairman of the C. M. Warren Committee.

5. The Committee on Publication, to consist of three Fellows, one from each class, to whom all communications submitted to the Academy for publication shall be referred, and to whom the printing of the Proceedings and Memoirs shall be entrusted. This Committee shall report to the Council in March of each year on the appropriations needed for the coming year. All bills incurred on account of publications, within the limits of the appropriations made by the Academy, shall be approved by the Chairman of the Committee on Publication.

6. The Committee on the Library, to consist of the Librarian *ex officio*, and three other Fellows, one from each class, who shall examine the Library and make an annual report on its condition and management. This Committee, through the Librarian, shall report to the Council in March of each year, on the appropriations needed for the Library for the coming year. All bills incurred on account of the Library, within the limits of the appropriations made by the Academy, shall be approved by the Librarian.

7. The House Committee to consist of three Fellows. This Committee shall have charge of all expenses connected with the House, including the general expenses of the Academy not specifically assigned to other Committees. This Committee shall report to the Council in March in each year on the appropriations needed for their expenses for the coming year. All bills incurred by this Committee within the limits of the appropriations made by the Academy shall be approved by the Chairman of the House Committee.

8. An auditing Committee, to consist of two Fellows, for auditing the accounts of the Treasurer, with power to employ an expert and to approve his bill.

9. In the absence of the Chairman of any Committee, bills may be approved by a member of the Committee designated by the Chairman for the purpose.

CHAPTER VI.

OF THE SECRETARIES.

1. The Corresponding Secretary shall conduct the correspondence of the Academy, recording or making an entry of all letters written in its name, and preserving on file all letters which are received; and at each

meeting he shall present the letters which have been addressed to the Academy since the last meeting. Under the direction of the Council, he shall keep a list of the Resident Fellows, Associate Fellows, and Foreign Honorary Members, arranged in their Classes and in Sections in respect to the special sciences in which they are severally proficient; and he shall act as secretary to the Council.

2. The Recording Secretary shall have charge of the Charter and Statute-book, journals, and all literary papers belonging to the Academy. He shall record the proceedings of the Academy at its meetings; and after each meeting is duly opened, he shall read the record of the preceding meeting. He shall notify the meetings of the Academy, apprise officers and committees of their election or appointment, and inform the Treasurer of appropriations of money voted by the Academy. He shall post up in the Hall a list of the persons nominated for election into the Academy; and when any individual is chosen, he shall insert in the record the names of the Fellows by whom he was nominated.

3. The two Secretaries, with the Chairman of the Committee of Publication, shall have authority to publish such of the records of the meetings of the Academy as may seem to them calculated to promote its interests.

4. Every person taking any books, papers, or documents belonging to the Academy and in the custody of the Recording Secretary, shall give a receipt for the same to the Recording Secretary.

CHAPTER VII.

OF THE TREASURER.

1. The Treasurer shall give such security for the trust reposed in him as the Academy shall require.

2. He shall receive all moneys due or payable to the Academy and all bequests and donations made to the Academy. He shall pay all bills due by the Academy, when approved by the proper officers (except those of the Treasurer's office, which may be paid without such approval). He shall sign all leases of real estate in the name of the Academy. All transfers of stocks, bonds, and other securities belonging to the Academy shall be made by the Treasurer with the written consent of one member of the Committee of Finance. He shall keep an account of all receipts and expenditures, shall submit his accounts annually to the Auditing

Committee, and shall report the same at the expiration of his term of office or whenever called on so to do by the Academy or Council.

3. The Treasurer shall keep separate accounts of the income and appropriation of the Rumford Fund and of other special funds, and report the same annually.

4. The Treasurer may appoint an Assistant Treasurer to perform his duties, for whose acts, as such assistant, the Treasurer shall be responsible; or the Treasurer may employ any Trust Company, doing business in Boston, as agent to perform his duties, the compensation of such Assistant Treasurer or agent to be paid from the funds of the Academy.

CHAPTER VIII.

OF THE LIBRARIAN AND LIBRARY.

1. It shall be the duty of the Librarian to take charge of the books, to keep a correct catalogue of them, to provide for the delivery of books from the Library, and to appoint such agents for these purposes as he may think necessary. He shall make an annual report on the condition of the Library.

2. The Librarian, in conjunction with the Committee on the Library, shall have authority to expend such sums as may be appropriated, either from the General, Rumford, or other special Funds of the Academy, for the purchase of books, periodicals, etc., and for defraying other necessary expenses connected with the Library.

3. To all books in the Library procured from the income of the Rumford Fund, or other special funds, the Librarian shall cause a stamp or label to be affixed, expressing the fact that they were so procured.

4. Every person who takes a book from the Library shall give a receipt for the same to the Librarian or his assistant.

5. Every book shall be returned in good order, regard being had to the necessary wear of the book with good usage. If any book shall be lost or injured, the person to whom it stands charged shall replace it by a new volume or set, if it belongs to a set, or pay the current price of the volume or set to the Librarian; and thereupon the remainder of the set, if the volume belonged to a set, shall be delivered to the person so paying for the same.

6. All books shall be returned to the Library for examination at least one week before the Annual Meeting.

7. The Librarian shall have custody of the Publications of the Academy. With the advice and consent of the President, he may effect exchanges with other associations.

CHAPTER IX.

OF MEETINGS.

1. There shall be annually four stated meetings of the Academy; namely, on the second Wednesday in May (the Annual Meeting), on the second Wednesday in October, on the second Wednesday in January, and on the second Wednesday in March. At these meetings, only, or at meetings adjourned from these and regularly notified, or at special meetings called for the purpose, shall appropriations of money be made, or alterations of the statutes or standing votes of the Academy be effected.

Special meetings shall be called by the Recording Secretary at the request of the President or of a Vice-President or of five Fellows. Notifications of the special meetings shall contain a statement of the purpose for which the meeting is called.

2. Fifteen Resident Fellows shall constitute a quorum for the transaction of business at a stated or special meeting. Seven Fellows shall be sufficient to constitute a meeting for scientific communications and discussions.

3. The Recording Secretary shall notify the meetings of the Academy to each Resident Fellow; and he may cause the meetings to be advertised, whenever he deems such further notice to be needful.

CHAPTER X.

OF THE ELECTION OF FELLOWS AND HONORARY MEMBERS.

1. Elections shall be made by ballot, and only at stated meetings.

2. Candidates for election as Resident Fellows must be proposed by two Resident Fellows of the section to which the proposal is made, in a recommendation signed by them; and this recommendation shall be transmitted to the Corresponding Secretary, and by him referred to the Council. No person recommended shall be reported by the Council as a

candidate for election, unless he shall have received the approval of at least five members of the Council present at a meeting. All nominations thus approved shall be read to the Academy at any meeting, and shall then stand on the nomination list until the next stated meeting, and until the balloting. No person shall be elected a Resident Fellow, unless he shall have been resident in this Commonwealth one year next preceding his election. If any person elected a Resident Fellow shall neglect for one year to pay his admission fee, his election shall be void; and if any Resident Fellow shall neglect to pay his annual assessments for two years, provided that his attention shall have been called to this article, he shall be deemed to have abandoned his Fellowship; but it shall be in the power of the Treasurer, with the consent of the Council, to dispense (*sub silentio*) with the payment both of the admission fee and of the assessments, whenever in any special instance he shall think it advisable so to do. In the case of officers of the Army or Navy who are out of the state on duty, payment of the annual assessment may be waived during such absence if continued during the whole official year and if notification of such absence be sent to the Treasurer.

3. The nomination and election of Associate Fellows shall take place in the manner prescribed in reference to Resident Fellows.

4. The nomination and election of Foreign Honorary Members shall take place in the manner prescribed for Resident Fellows, except that the nomination papers shall be signed by at least seven members of the Council before being presented to the Academy.

5. Three-fourths of the ballots cast must be affirmative, and the number of affirmative ballots must amount to eleven to effect an election of Fellows or Foreign Honorary Members.

6. If, in the opinion of a majority of the entire Council, any Fellow—Resident or Associate—shall have rendered himself unworthy of a place in the Academy, the Council shall recommend to the Academy the termination of his Fellowship; and provided that a majority of two-thirds of the Fellows at a stated meeting, consisting of not less than fifty Fellows, shall adopt this recommendation, his name shall be stricken off the roll of Fellows.

CHAPTER XI.

OF AMENDMENTS OF THE STATUTES.

1. All proposed alterations of the Statutes, or additions to them, shall be referred to a committee, and, on their report at a subsequent stated meeting or a special meeting called for the purpose, shall require for

enactment a majority of two-thirds of the members present, and at least eighteen affirmative votes.

2. Standing votes may be passed, amended, or rescinded at a stated meeting, or a special meeting called for the purpose by a majority of two-thirds of the members present. They may be suspended by a unanimous vote.

CHAPTER XII.

OF LITERARY PERFORMANCES.

1. The Academy will not express its judgment on literary or scientific memoirs or performances submitted to it, or included in its publications.

STANDING VOTES.

1. Communications of which notice has been given to the Secretary shall take precedence of those not so notified.

2. Associate Fellows, Foreign Honorary Members, and Resident Fellows, who have paid all fees and dues chargeable to them, are entitled to receive one copy of each volume or article printed by the Academy on application to the Librarian personally or by written order within two years of the date of publication. Exceptions to this rule may be made in special cases by vote of the Academy.

3. The Committee of Publication shall fix from time to time the price at which the publications of the Academy may be sold. But members may be supplied at half this price with volumes which they are not entitled to receive free, and which are needed to complete their sets.

4. Two hundred extra copies of each paper accepted for publication in the Memoirs or Proceedings of the Academy shall be placed at the disposal of the author, free of charge.

5. Resident Fellows may borrow and have out from the Library six volumes at any one time, and may retain the same for three months, and no longer.

6. Upon special application, and for adequate reasons assigned, the Librarian may permit a larger number of volumes, not exceeding twelve, to be drawn from the Library for a limited period.

7. Works published in numbers, when unbound, shall not be taken from the Hall of the Academy, except by special leave of the Librarian.

8. Books, publications, or apparatus shall be procured from the income of the Rumford Fund only on the certificate of the Rumford Committee that they, in their opinion, will best facilitate and encourage the making of discoveries and improvements which may merit the Rumford Premium; and the approval of a bill incurred for such purposes by the Chairman shall be accepted by the Treasurer as proof that such certificate has been given.

9. A meeting for receiving and discussing scientific communications may be held on the second Wednesday of each month not appointed for stated meetings, excepting July, August, and September.

10. No report of any paper presented at a meeting of the Academy shall be published by any member without the consent of the author, and no report shall in any case be published by any member in a newspaper as an account of the proceedings of the Academy.

RUMFORD PREMIUM.

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